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Textile World

FEBRUARY 1940

NEW YORK
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A McGRAW-HILL PUBLICATION

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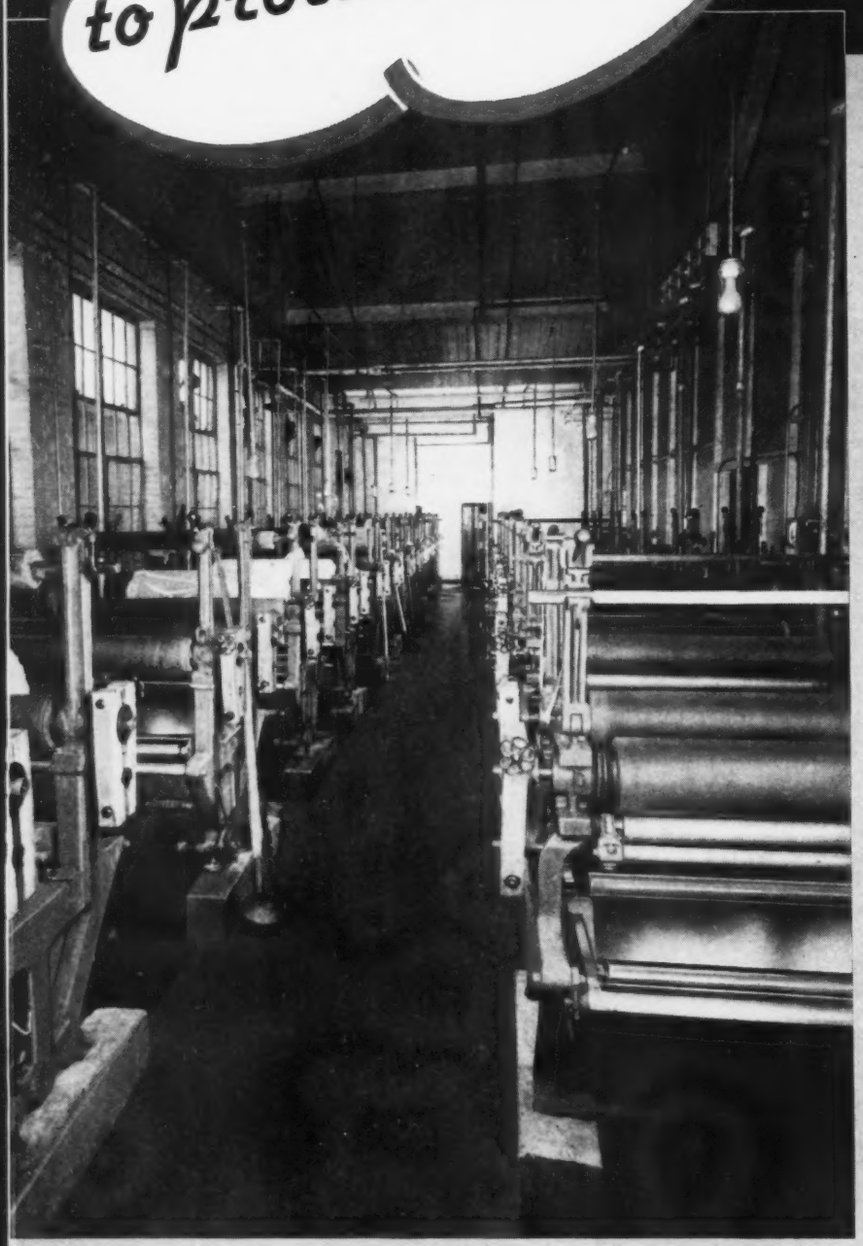

Dyer ends frequent replacement costs—cuts cleaning time—with this perfected stainless steel

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Textile World

FEBRUARY, 1940 DOUGLAS G. WOOLF, *Editor*

ANNUAL REVIEW AND FORECAST SECTION

Textiles Bust Out in Big Boom

By DOUGLAS G. WOOLF

ALL BETS WERE OFF in 1939. We predicted an increase in textile mill activity over 1938—which was correct—but we were too conservative in estimating that TEXTILE WORLD's index would go to only 115 (on basis of 1923–25 as 100). It increased 28% over 1938, and went to 132, a new high and seven points above the previous record of 125 in 1937. The chart below, and the adjoining table, show the indices from 1929 through 1939.

Possibly if Hitler hadn't gone beserk, our estimate would have been fairly close. However, we never regret being too conservative in our attempts to prophecy.

At just about this juncture in most of our annual surveys, we inject the sad news that, although mill activity wasn't bad at all, profit possibilities were either limited or nil. This year we have a new story to tell. It is true that during the first part of the year textile manufacturers went their usual philanthropic way, giving away their shirts, and throwing in the buttons for good measure. But the boom which started Sept. 1, via Hitler, pushed prices and manufacturing margins up and resulted in profitable operations. For the year as a whole, most outfits made a modest profit.

TEXTILE WORLD'S Textile Mill Activity Index

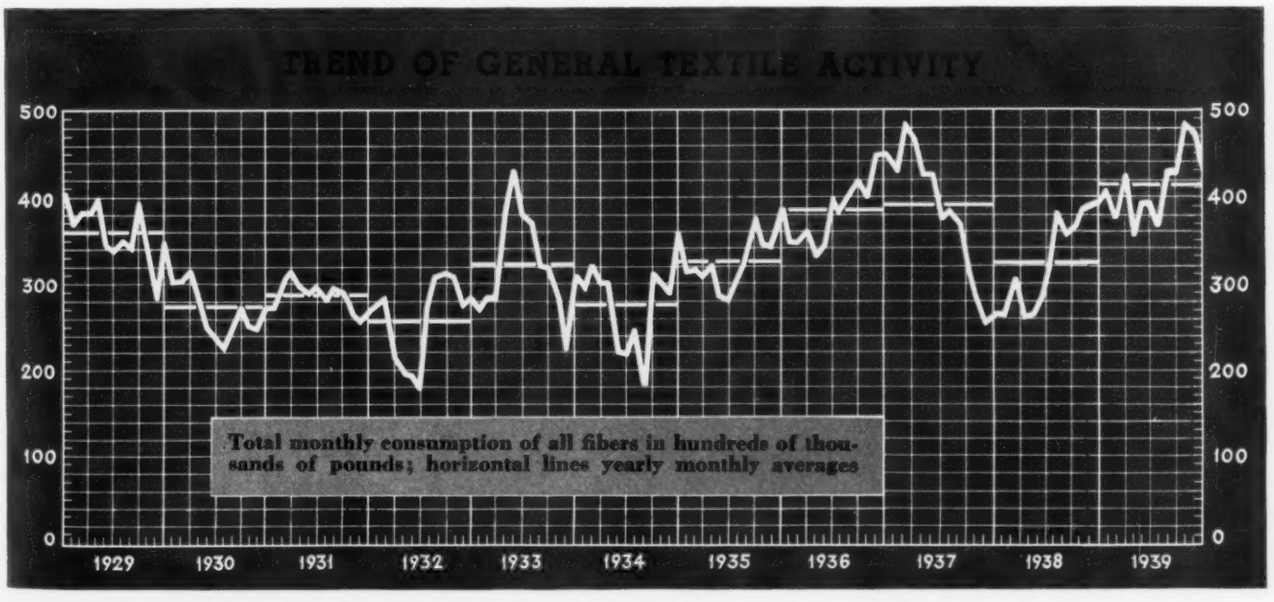
1923–25 average = 100

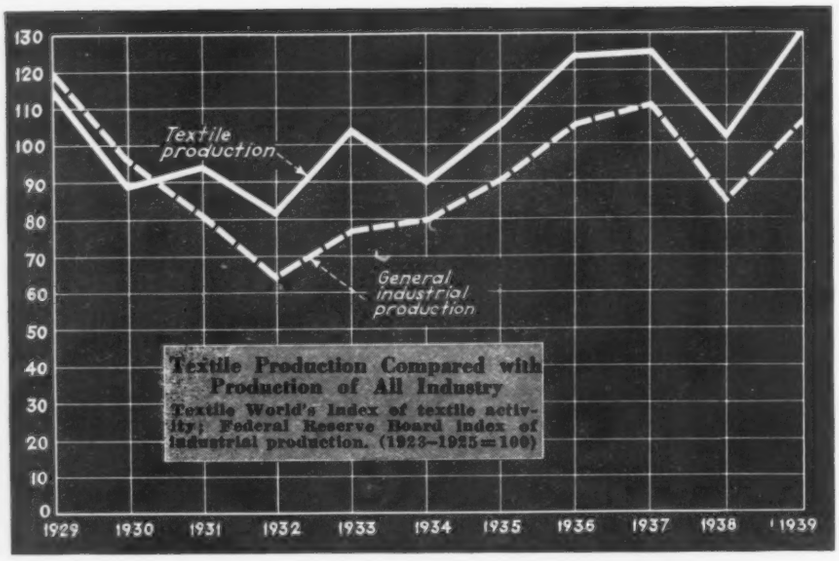
1929	115
1930	89
1931	93
1932	83
1933	104
1934	90
1935	105
1936	124
1937	125
1938	103
1939	132

Let it be said to the lasting credit of this industry that it didn't go hay-wire on prices or on long-term sales commitments. It seemed to have learned its lesson. It probably was a little too exuberant in its production schedules, but on the whole it weathered the boom in more sea-worthy fashion than has been true in any other textile adventure in this writer's memory.

As a result, the industry started the new year in good shape despite rather disquieting trends in inventory, output and price.

That brings us—and we can't help it—to 1940. We have said previously in these columns that it takes a brave man to predict the course of the year now under way. The uncertainties of the war in Europe and of its effects upon our domestic economy; the unsettling reaction of an election year—





Textile Production Compared with Production of All Industry

Textile World's index of textile activity; Federal Reserve Board index of industrial production. (1923–1925=100)

and particularly this election year; the question whether general business has over-run its normal expectancy—all those add up to a great big question-mark.

In addition there is the strictly textile factor of the two-year cycle. Both the chart and the table, previously referred to, show that, with the single exception of the year 1936, odd years were up in textile activity, and even years were down.

So, 1940 should be down. We think it will be. We would hazard a guess that textile mill activity this year would be maybe half-way between 1938 and 1939—say about 120 on TEXTILE WORLD's index. But that's nothing to worry about. That would be a good year.

Moreover, we have a hunch that the average return to textile manufacturers will be better, and more stable, in 1940 than in 1939—with the possible exception of certain specialized branches. On the whole, this writer feels that textile manufacture has come out of its many vicissitudes and is now a more stable zone of operation than it has been in any year since its private depression started in 1923. We are not writing these words casually; we have given a good deal of thought to them.

Furthermore, we believe that textile manufacturers will spend much more of their gross income for plant improvement during the next decade than they did during the last. Not because they want to, but because they have to. The wage-hour law, the technological advance, the increase in synthetic-fiber use—all *force* a textile manufacturer to modernize his plant—or else!

That is why we have devoted a special section of this issue (starting on page 95) to the theme "The Next Decade in Textiles" and to the sub-theme "Making Money Make More Money." We hereby advertise that section in the honest belief that a careful study of its implications will be a paying investment of time and thought on the part of those textile men who want to be in the picture in 1950.

SO MUCH for the industry as a whole. How about its individual branches?

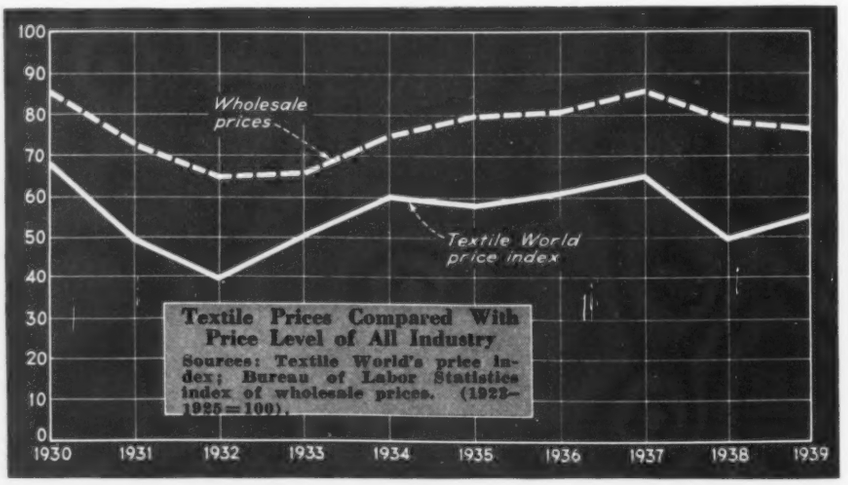
Well, cotton consumption in 1939 increased 25% over 1938; wool consumption was 32% up; filament rayon use advanced 32%; consumption of rayon staple, the new boy-wonder, was 88% up; and silk consumption was *off* 7%. Hosiery production in 1939 reached a new record, 6.6% up from 1938, and underwear output was up 25% from the previous year. All these specialized trends are discussed in more detail in the economic survey starting on page 93, and in the special section previously mentioned.

More exciting still, was the progress of TEXTILE WORLD's composite price index. It will be noted, from the chart on this page, that the 1939 index was 12% up from 1938. However this comparison does not reveal the full improvement which took place in the last four months of the year, since the composite index averages the 12 months. Actually, the December 1939 index was 35% above the January 1939 index. Details of the index numbers for the individual branches of the industry will be found in the economic survey **(page 93)**.

Finally, we call attention to the chart on this page, showing textile production in relation to general industrial output. It will be noted that TEXTILE WORLD's index for 1939 was 131, while the Federal Reserve Board's index for the same year was 105—both based on 1923–25 average as a base of 100. It will also be noted that the textile index has run ahead of the general industry index since 1931.

Why, then, isn't this a good industry in which to operate? It is—or rather it should be, and can be if textile manufacturers will only realize that the object of being in business is to make money—for stockholders, paid management, key operating executives and employees. If they get scared by every down-swing in textile demand—despite the fact that we have had down-swings every year in any man's memory and will continue to have them every year in the future—they will of course dump everything overboard and yield to the buyer who will naturally take everything he can get. But the buyers—as we know them—would prefer a stable supplying industry to one which has gone through the stupid vibrations which have characterized textile merchandising during the last decade.

After all, it just takes guts. And it *does* take guts to be a *profitable* operator in textile production nowadays. Our final thought is that the race during the next decade will not be to the swift, but to the brave.



Textile Prices Compared With Price Level of All Industry

Sources: Textile World's price index; Bureau of Labor Statistics index of wholesale prices. (1923–1925=100).

Textile Machinery Sales at Peak

AFTER A BAD BUMP in 1938, textile machinery manufacturers climbed up again in 1939 and more than regained all the ground lost in that better-forgotten previous year. As a result TEXTILE WORLD's exclusive index of sales of textile machinery and supplies increased 42% in 1939, reaching 105 (on basis of 1929 as 100) as against 73 in 1938, and 104 in 1937, previous top year of 11 years covered by this survey. This survey is made possible by the cooperation of equipment and accessories manufacturers who give us confidential information concerning their sales for last year, and their prospects for the present year.

The record for the last 11 years, as shown by TEXTILE WORLD's index, follows (1929 = 100):

1929	100
1930	67
1931	57
1932	39
1933	56
1934	63
1935	74
1936	94
1937	104
1938	73
1939	105

It will be noted that there has been only one interruption in the steady climb which started in 1932. That occurred in 1938, but the advance was resumed in the following year.

Although there were some wide discrepancies among a few of the firms reporting, most of those within a specific group followed the general pattern for the group. Against a general increase of 42% for sales to the industry as a whole, the index for sales of preparatory, spinning, and weaving machinery increased 34%; knitting machinery 33% up; bleaching, dyeing and finishing equipment 47% increase; and auxiliary equipment, accessories and supplies, 54% up. The index for the latter group was boosted by the sharp increase in sales of airconditioning equipment to the textile industry, which had dropped very sharply in 1938 but made a spectacular comeback in 1939.

WHAT'S AHEAD? Generally speaking, most firms which sell to the textile industry are sitting pretty for the moment, with orders booked ahead, but are worried about the future—say after the first quarter. In this, they are no different from the bulk of American business and industry. Most prophets are using the low voice this year.

Consequently we find that, whereas a year ago 86% of the manufacturers were optimistic regarding the outlook for 1939, today only 43% are definitely confident about 1940. Of the other 57%, 30% are pessimistic, and 27% just don't know what to think. Not many ventured a guess on probable percentage change in 1940 as compared with 1939; those who did averaged an estimate of an increase of 9%. However, taking into account the number who were inarticulate on this point, as well as the general tenor of the replies, we think it safe to say that the majority will consider themselves lucky if their 1940 sales equal those of 1939, and in fact are more apt to anticipate, and budget, a 10% decrease than a 10% increase. Even at that, however, it would be a good year, and that's what 1940 seems to promise to be.

What They Say

Among the more exuberant comments are the following:

★ "From everything we can see, based on the assumption that the war will continue, we look to 1940 to be one of the largest years in industrial history."

★ "In regard to 1940 business, we look forward to having an exceptionally good year in this field."

★ "The outlook for 1940 seems very good. We are already sold 10 to 12 weeks ahead."

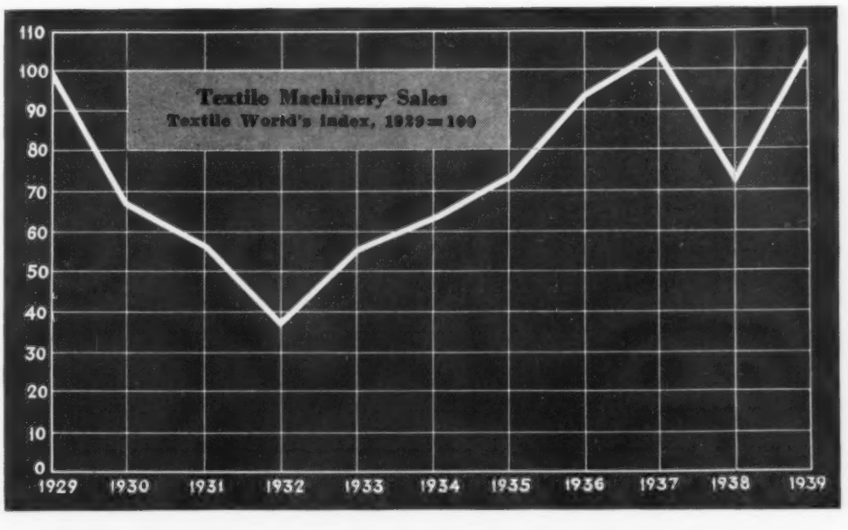
★ "As regards the year 1940, we are going into the year with about twice as much work on hand as we had when we entered the year 1938 and the number of men we are employing is up in accordance with this. The last year we were able to run through the year on a basis of full time. For the same reason, we are looking forward to 1940 with more or less confidence."

More restained, but still hopeful, are these expectations:

★ "As we look forward into 1940, we rather hope for a still further increase in sales. Naturally, anything is apt to happen during this year with the wars in Europe and the election; however, we feel rather optimistic for the future. I hope we will not be disappointed."

★ "Certain phases of our business were at the peak during 1939 and we look for this to continue through 1940. Our new equipment and newly designed machinery should put us in a very good position for 1940."

★ "While the current year has not as yet progressed very far to form a defi-



nite opinion as to results, the indication is at the present time that the favorable rate of activity which prevailed during the latter part of 1939 will continue well on into 1940."

★ "For the year 1940, we estimate an addition of 10%."

★ "As for the outlook for this year, it is starting off very slowly, but we have a substantial back-log of unfilled orders which will carry us for several months. In the meantime, if we should close our normal percentage of outstanding proposals, this year should show a small increase over 1939."

★ "At the present time we are booked ahead for about three months. As inquiries continue to come in, we naturally expect a pretty good year for 1940."

And finally, we grade down to those who don't feel too happy about the outlook:

★ "From our present outlook of 1940, particularly in regard to sale of textile machinery, we believe that the year will show a decrease for 1940 when compared with 1939."

★ "We hesitate this year, more than ever, to make any prediction for the year of 1940, but our plans for the first six months are being based on a sales volume which is somewhat less than for 1939."

★ "We anticipate no increase in sales for 1940. As a matter of fact, we are forecasting sales for 1940 at about 10% less than 1939 actual sales."

★ "The immediate outlook for 1940 is good, about the same as the last four months of 1939. How long this will continue we cannot tell, but it seems to be a rather common agreement for those who forecast the future of business that there is likely to be some recession in the next few months. Some place it soon after March—others after June, but no major depression seems to be anticipated. Our present orders would carry us through approximately to the first of March."

★ "For '40 we question if it will be as good as '39, but do feel that it will be materially better than '38."

★ "As to forecast: I sense cautious buying for the forepart of 1940 with increasing sales results as the year develops. This caution in buying seemed to have developed along the first of December, 1939, and continues through January to this writing."

Strangely enough, the Administration didn't come in for as many potshots as in the previous years. Possibly this is on the belief, or hope, that it's on its way out anyway. But there were a few cracks, of which these are samples:

★ "If there should be no developments in the war situation to adversely affect business, if the Administration should continue in its policy of appeasement, and if Congress should not propose or pass any additional radical legislation, 1940 should be a profitable year for the textile industry. If 1940 should turn out to be a profitable year we should not allow ourselves to overlook the fundamentally unsound situation of an unbalanced budget and an ever-increasing public debt. We might as well realize that there must be an end to this situation some day, and the longer it is postponed the harder will be the readjustment."

★ "I have made an intensive personal effort in my travels about the country to get some indication of what may be in store for us associated with the industry, but am sorry to say that my investigations and interviews have brought me a net gain of vagueness and confusion. I know that this is an old and tired tune, but until we can have some relief from the vagaries of Government and the whims of kettle-drum-pounding Congressmen, there is not much that anybody can say with any surety. I, personally, feel that if Mr. Roosevelt would point-blank declare his intention to retire, there would be an immediate and healthy gain in business. I do not think that I need to enlarge upon the reasons for this."

★ "It is our expectation that 1940 will be a little better than '39 due to the less threatening tone of those in authority who seem rather disposed not to ride business as hard as in the past and also to encourage capital into new ventures. However it will largely depend on war conditions and whether the New Deal is to survive."

Modernization is again a favorite subject, calling forth such comments as these:

★ "The buying of cotton mill machinery has not been as great as it should have been to keep the mills up in shape and to carry out the necessary modernization program which they all will have to face in the near future."

★ "Our mill customers remain extremely sensitive to the need of better equipment, particularly along the line of elimination of manual labor; consequently, we develop a quite optimistic view on the net result of 1940. Interesting is the fact of requested services by customers on sizable projects in approximate figures or prices admittedly to be used for budget purposes."

And, finally, here are miscellaneous thoughts:

★ "So far, we have received a great many inquiries from South American republics. How greatly this will reflect into our sales, it is impossible to tell. We have quoted on quite a lot and have received the expected comment that we are very much higher than the German and English machinery of similar type. On the other hand, if they have no other place to go, they will be compelled for a short time at least to pay the prices occasioned by the high labor cost in the United States. This may increase our expected orders above normal, but we are not counting on it."

★ "The trade seems to show considerable interest and a desire to purchase new machinery, but appears to lack confidence in the future market."

★ "In regard to the outlook for 1940, it is difficult to say at this time what it will be, but we have started off the new year with some nice orders and we expect that we may enjoy more foreign business than we have had in the last few years. Both Canada and South America seem to be interested in new machinery."

★ "The outlook for 1940 does not seem to be very promising. The mills are very quiet, probably due to wage and hour conditions, not to mention the increased cost of wool, and are not at all 'machine-minded.' So far as we can see, there is no noticeable trend toward any special line. Increased cost of production and raw matrials necessitate an increase in price which the market does not warrant. If, therefore, new equipment could be purchased to give a much greater production or cut the cost of production, then there might be an interest in purchasing new equipment; otherwise we feel that the possibility of selling new machinery is very remote. We hope conditions become more stable and that more activity will develop.

TECHNICAL DEVELOPMENTS — Following is presented a series of articles reviewing the outstanding technical advances of the year in various divisions of the industry, supplemented by a summary of economic trends.

By HORACE L. PRATT

IN COTTON MANUFACTURING two trends have been evident during the last year—greater incentive to modernize cotton equipment, and installation of special machinery for producing spun-rayon yarns, and fabrics. The first is due to availability of additional funds resulting from an upswing in business, and the necessity of improving mechanical efficiency because of increase in minimum wage rates. The second is the result of the increased use of rayon staple.

New cotton machinery includes improved automatic looms, automatic winders, and an automatic blending feeder. For rayon staple there are new drafting sections for drawing, roving, and spinning frames, and new looms. The problem of reducing vibration in high-speed, large-package spinning of cotton has received considerable attention.

In the opening room an automatic blending feeder, of extra heavy design, has improved conditions. When the hopper is full, the door through which the cotton is fed closes automatically, so that overloading is impossible. A surplus of cotton is piled on the door by the operator and, when the hopper needs more stock, the door opens automatically. Thus it is necessary only for the operator to keep the machine supplied with a visible supply of cotton.

A dust and waste extracting condenser, for use wherever it is necessary to separate cotton from the air stream in which it is being transported, has been made available. It has a condenser cage and a built-in fan; and is equipped with dust-proof, anti-friction bearings. This machine can be used also for wool and synthetic fibers.

Static electricity, long a bane of the card room, is put to practical use in a new stripping device. The surface plate, which is set $\frac{1}{16}$ to $\frac{1}{8}$ in. away from the card cylinder, is made of a special compound that accumulates static electricity generated by air pressure created by the cylinder and by friction of the fibers. Fibers are attracted to the plate by this accumulated static electricity and prevented from sinking into the base of the card wire. As there is no contact between the device and the card wire, damage to the wire is impossible. Intervals between strippings are lengthened considerably, and fiber loss is reduced.

Twelve improvements are embodied in a long-draft roving frame brought out by one company. Among these is the complete redesigning of the universal head gearing unit, the function of which is to permit intermediate draft adjustments without changing the over-all draft. The unit is inclosed in a streamlined aluminum cover which protects it from lint but which swings back on a hinge to permit ready access for adjustments. Among the other improvements are adjustable bevel-gear lifting-roll drive, worm-drive adjustable traverse motion which eliminates dwell, rustless-metal clearer covers with cylindrical front roll clearer, and redesigned roll stand which permits easy setting of rolls.

Needle-bearing top rolls incorporated in another new long-draft roving frame are sealed against leakage of lubricant and infiltration of dust and lint. The motion of the top rolls is synchronized with that of the bottom steel rolls, tending to prevent irregular motion of the rolls, which might cause variation.

Other advances in the card room include a light, strong, low-cost roving can; a roving frame creel made from a steel section covered with a heavy, durable coat of baked enamel, for frames supplied from cans; a scissors-type traverse motion for frames equipped with metallic back rolls; and a stop-motion which assures the correct control of yardages on roving frames of certain types.

SPINNING. The problem of vibrating spindles in high-speed, large-package spinning is being approached from two angles; viz, improvements in the spindle assembly itself, and changes and improvements in the bobbin. With one new spindle, vibration is reduced by means of a special device for true seat location and a full-floating damping footstep bearing. These are said to allow the loaded spindle to center itself at all times and at any speed, so that it runs in the center of the rotating mass.

Two improved spinning bobbins are a regular hardwood bobbin fitted with a special rubber bushing, and a new paper spinning tube. The effect of the rubber bushing applied to the regular bobbins, is to assure a close fit at the upper bearing to eliminate roughness or vibration and prevent the slipping of the bobbin on the spindle. Paper bobbins have been used extensively in Europe and South America for several years, but are just being introduced in this country. The paper spinning bobbins weigh only about one-sixth as much as the regular wooden bobbins of corresponding size, and are run on a special sleeve-type spindle. They are suspended at the top of the spindle, while at the lower end they have a clearance of from 0.008 to 0.012 in. This type of suspension is used for the purpose of allowing the bobbin to seek its center of gravity, to eliminate vibration. This suspension also is said to reduce bobbin slippage and resultant wear at the tip of the spindle.

Other improvements in the spinning room include ball-bearing top rolls; improved cork cots; synthetic roll coverings; rings with a smooth, glass-like

surface; an improved roving skewer; and an improved spinning creel.

A special design of twister ring of hardened steel and with an oil reservoir is said to permit longer traveler life and to assure cleanliness and non-soiling of the yarn. Two types of automatic filling winders were described in last year's review, and a third is expected to be made available before the end of 1940.

An outstanding feature of packages produced on an improved winder equipped with a new pineapple-cone attachment is that they have about a 45° taper at the base and only about a 15° taper at the nose. The degree of taper at the nose is said to assist throwsters in producing a higher percentage of first-quality cones, and thus to reduce the amount of rewinding necessary. An automatic head which permits the operator to handle 18 to 22 bobbins per minute is the main feature of another make of winder.

An example of what can be done to make the slasher room more efficient and cleaner, and at the same time obtain more uniformly slashed warps, is the installation, in at least one mill of an automatic starch-weighing and conveying system. The system consists essentially of a large starch storage bin, a bucket-type elevator, and a movable weighing bin suspended from a track running above the various kettles. A knock-off and weighing device permits a predetermined amount of starch to be delivered to the movable bin.

WEAVING. Visitors at the Southern Textile Exposition were impressed with the exhibits of the makers of weaving equipment: One improved loom displayed is so versatile that with certain changes it will weave either heavyweight cotton fabrics or the heavier rayons. This loom is of heavy construction, and has steps which make it possible to operate the loom with beams of various widths from 16 to 26 in. between heads. On rayon the loom operates at 172 to 182 picks per min.; on cotton, up to 192 picks per min. It is designed to carry a 9½-in. bobbin, with as much as 3½ oz. of filling.

A new blanket loom operates at 135 picks per min., takes large filling packages, carries a 24-in. beam, and holds a roll of cloth up to 22 in. in diameter. This loom is equipped with a new multiplier which permits the chain to repeat as many picks as desired, and also has a reversing motion for use in weaving blankets which have end borders and plain bodies; it is 92 in. between swords. On a new silk and rayon loom panne satins can be woven at the rate of 174 picks per min., with an efficiency of better than 90%. This is a 20-harness, 2 x 1 box, bobbin-changing loom, 52 in. between swords. Two of its outstanding features are a vacuum yarn control and an inclining magazine creel.

Other developments in weaving equipment include an improved heddle frame which permits the brace bar to be easily removed without disturbing either the warp ends or the heddles; a harness frame and flat steel heddle to be used with a new drawing-in machine; a new shuttle spring with a rubber vibration dampener; a protector-rod oscillator which relieves pressure on the shuttle when being picked from the box; new pick counters; a warp drawing-in machine; chain tester and a reeding machine; and a drop-wire inserting machine.

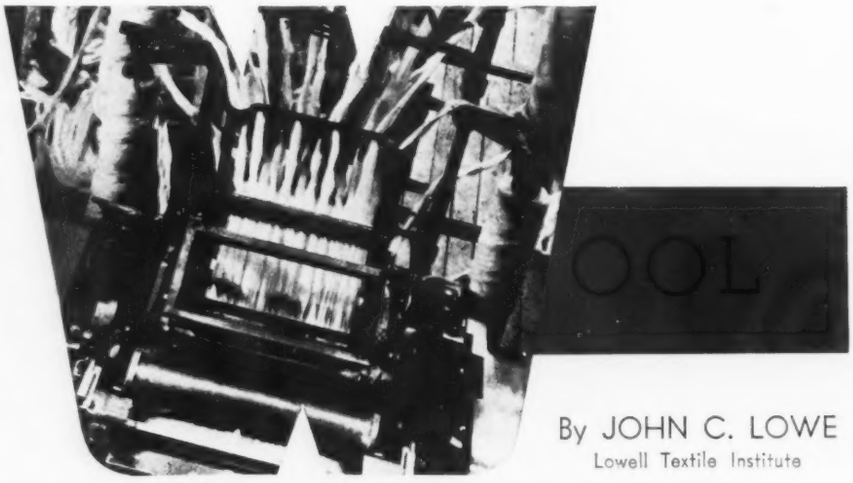
RAYON STAPLE. Increasing use of rayon staple in cotton mills—alone and in blends with other fibers and in a wide variety of deniers and staple lengths—has resulted in the development of new special machinery for handling this fiber. Thus, with a new rayon opener all opening is said to be done inside the machine in a series of gentle operations. It is stated that the stock is never held while being worked, resulting in remarkable freedom from fiber damage. The machine is designed to handle stocks ranging from 1 to 7 in. in length. At least two concerns have announced equipment for the conditioning of and applying fugitive tints (for batch identification) to rayon staple fiber.

A surface-wound card feed roll using lickerin-type wire, while suitable for cotton, is especially adapted to rayon staple. As a result of the trend toward use of longer staples of rayon fiber—2 and 3 in.—special drafting sections have been developed for drawing, roving, and spinning frames. These have rolls of larger diameters and with wider spacings.

To meet problems brought about by the growth of spun rayon, twisting of filament rayon, and ring-spinning of worsted yarns, a line of ellipse-rolled travelers has been introduced.

Special warp sizing compounds have been developed to facilitate weaving.

A few mills have installed new automatic looms for weaving spun rayon and blended fabrics. The looms use beams with 24-in. diameter flanges; these increase the amount of yarn in the warp by approximately 75%. The picking motion is of the batwing type, known to worsted mills but not so familiar to the cotton mills, where the cone picking motion has been used. Also, the filling stop-motion is in the center of the loom.



By JOHN C. LOWE
Lowell Textile Institute

OUTSTANDING DEVELOPMENTS in woolen and worsted yarn manufacture during 1939 included improvements in methods of wool scouring as regards detergents, purification of contaminated solutions, and instrument control of conditions in scouring bowls; use of fine ordinary gill boxes in the second group of operations of French drawing; increased use of large-packages in mule and frame spinning and twisting; and growing interest in high-draft equipment for worsted yarns.

In scouring, some mills have installed equipment to treat continuously the fouled liquor from the bowls. A recovery system removes sediment and grease automatically from contaminated liquor. The soap, water, and alkali are returned to the bowls for re-use. In this way relatively clean solutions are constantly in use. In addition to the recovery system, a group of measuring and recording instruments is used; by means of these, various important factors which affect scouring can be

checked at frequent intervals, so that the required conditions can be uniformly maintained.

In addition to controlled wool scouring, there is increased mention of "neutral" and "acid" scouring. Developments in detergent agents have been very rapid in recent years.

Soap, sulphated fatty alcohols, and similar detergents are all anion-active. The so-called reversed soaps, however, are cation active. Acid washing is possible with cation-active detergents, and this is believed to be an important advance. Deposits of lime or magnesium soaps, or flat shades caused by traces of metal left in the fiber after scouring, need not be feared—a decided advantage in dyeing. Cation-active detergents are not, as yet, common in the industry, but cautious experiments are indicating their worth.

The view has been expressed by some authorities that acid scouring might be expected to increase the extensibility of wool and, as a result, the wool would process badly in both combing and spinning. Such critics favor the neutral scouring of wool, stating that wools so scoured are soft and clean, spin better, and are more easily dyed.

IN WOOLEN-YARN manufacture there has been consistent improvement in machines and equipment. A new wool spreader is said to prevent separation of stock when wool and shoddy mixes are being blown into bins. Baffles are built into the spreader to control air currents, and the spreader revolves on double rows of ball bearings. The opened stock is delivered without change in character, which means less trouble from streaky and rowey goods.

An improved rag or shoddy picker offered to the trade has two important features: an automatic bit returner for continuous return of unopened bits of fabric to the feed apron, and a quick feed roll and apron wind-back device, for use when the feed becomes jammed due to excessive stock. Heavy construction assures trouble-free performance and large production. Different weights and styles of teeth can be furnished to suit demands. A three-speed device is provided for the feed rolls.

Several innovations and improvements in carding equipment were brought out during last year. One such is a high-speed, small cylinder, worsted garnett card which is covered with hardened-point garnett wire. It is designed to handle wool and staple fiber. The 30-in. cylinders may be run 215 r.p.m. The machine can be supplied with one, two, or three cylinders.

Another interesting idea in woolen carding is the use of extra rolls set one in front of each worker. These are run at speeds higher than that of the workers, and in opposite direction to the rotation of the cylinder. The extra rolls function as cleaning rolls and as extra workers; they also help to maintain sharp points on the worker teeth, thus making possible better carding.

A saw-tooth wire of special design has been patented for use on the forepart of cards. The front edge of each tooth slopes to the rear, and the rear edge constitutes a concave curve which merges with the front edge of the following tooth. A newly designed waste-end conveyor for woolen cards delivers the waste end back to the Bramwell feed shredded into small pieces, and opened or fluffed to aid in the blending with other stock.

Uses for the patented thread-removing card clothing, also mentioned in last year's review, are broadening. Although designed primarily for opening or removing threads from reworked stock, it has been tried by some mills on the workers of finisher cards, to help in carding out neps. To meet this requirement, a finer—No. 36—thread-removing clothing has been developed for use on stock that has not been reworked and does not contain threads. It is said to be very good for carding out noils.

A device which crushes hard threads and vegetable matter is a thread and burr crusher, made in Belgium. It has found extended use in England and on the Continent and, since its recent introduction to this country, a number of orders have been placed by United States mills. Stock from the first breaker or intermediate is passed in a web the full width of the doffer between a pair of smooth-surfaced steel rolls. Pressure is applied to the top roll, and any threads or vegetable matter present are crushed or broken up. After passing through the crushing rolls, the stock can be handled by the usual drawing-off apparatus. It is stated that there is no damage to the loose fibers in the blend. When used with shoddy blends and blends containing vegetable matter, the device is said to make possible fewer broken ends in spinning; increase in weight of roping; improved production in winding, warping, and weaving; and reduced burling and mending.

Improved undergrids for woolen cards make it possible and practical to mix nubs in carding lots at the picker. A recently introduced double-deck burr remover combines the advantages of light feeding for effective removal, with increased card production. This is accomplished by dividing the wool into two streams. One is acted upon by Morel rolls and burr guards on the upper deck; the second stream is given similar treatment on the lower level. The wool is combined at the last lickerin or breast, and fed to the cylinder in a more open condition. The possibilities of this double-stream burr treatment should not be ignored by progressive mills handling seedy and burry wolls.

Mills are steadily changing over to broad-band feeds on woolen cards. There are two advantages: the broad-band feed makes possible very even roping, and the flattened band is in better condition for opening as it leaves the feed rolls. The first two or three workers can do efficient work, and as a result either a heavier feed or a faster speed can be used, thus giving more production.

Since 1936 there has been a great increase in the adaptation of mules, spinning frames, and twisters to large-package operation. Most firms producing woolen spinning machines brought out new models during 1939. The advantages are obvious: savings in floor space, more production per spindle, reduction in spooling time, more spindles per operative when twisting direct from spinning bobbins, and lower burling costs.

Improved roping drums for woolen mules and ring frames have been designed to withstand all ordinary and some unusual treatment. The corrugated sheet metal forming the surface of the drum stays corrugated and the drums retain their shape, thus maintaining uniform delivery of roping.

A foreign patent which is of interest to woolen ring-frame users and manufacturers in this country provides control, by means of variable-speed motors or special gears, of speeds of delivery rolls, feed rolls, and roping drums. Means are provided for indicating spindle speed, twist, delivery, and draft.

IN MOST WORSTED MILLS blends of grease wool or undyed top are made, and uniformity of the blend is important. To make uniformity visible, a patented process has been introduced. One of the components of the blend is treated with manganese dioxide or manganese hydroxide; this distinguishes it from the rest of the blend. When marked fibers are blended with unmarked fibers, uniformity of the resultant color indicates when a homogeneous mixture has been obtained. The deposit is subsequently reduced by oxalates, sulphites, or other reducing agents, preferably in the presence of aluminum sulphate or alum, the fibers being simultaneously bleached. The manganese dioxide can be applied in the grease or it can be formed on fibers which have been rendered greasy.

An interesting foreign machine, still in the experimental stage, is a combined

carding and gilling machine which consists of an automatic feed, two pairs of feed rolls, a licker-in with a burr roll, followed by two small-diameter carding rolls similar in size to licker-ins. In turn a doffer and comb deliver a web to a condenser which narrows the web and feeds it to a gill box. Several of these carding heads could deliver their ends to one gill box. The machine has possibilities for reduction of noilage, since with it breakage of fiber should be reduced.

There has been further reduction in the expenses of worsted drawing, but the end coming from the Noble comb is still considered to be so uneven and poorly blended that from 5,000 to 10,000 doublings are necessary before it can be reduced. If this is true, the preparatory processes before combing, and the comb itself, should be improved in order that the number of operations required in worsted drawing may be reduced.

From Japan comes word of an electrical fly-frame drive. In this machine the rollers, flyers, and bobbins are driven by individual electric motors so interconnected that the necessary speed relation is always maintained.

A feed-roll patent relating to drawing and spinning machines suggests a positively-driven, fluted bottom roll. The top feed-roll carries rows of pins which mesh with grooves in the fluted roll. At each end of the pinned section is a fluted collar engaging with and driven by the bottom-roll fluting. Points of pins cannot contact the metal.

A newly designed porcelain spinning eye is on the market for cap spinning frames. This pot eye has an upper flange of comparatively large diameter giving an easy lead to the central aperture. The flange stands above the board, preventing the yarn from picking up fly. Flyboards can be cleaned while the frame is running. The new eye is said to give a better spin because it enables the twist to run up to the front-roll nip, and because it aids in the prevention of double spinning.

Of interest is a new automatic, cop-changing winder. Each spindle on this machine is individually driven and a magazine of empty tubes is provided. Each spindle stops individually when an end breaks. Another machine automatically packs cops which are dumped into a feeding hopper.

Another machine, introduced to this country not long ago, is designed to curl animal-fiber yarns, such as mohair, alpaca, long luster wools, camel hair, etc. The group of ends to be curled is first given the required amount of twist under controlled tension. The twisted ends are then subjected to a superimposed twist without tension, which permits the twist to run back and snarl the twisted ends into a uniform, elastic, spiral curl. The two operations are carried out consecutively in one machine. The curl is permanently set by use of either a steaming or a boiling process. The temperature during setting, to insure a permanent set, must be not less than the temperature of any succeeding process. Production is almost continuous and the machine is said to be simple to operate.

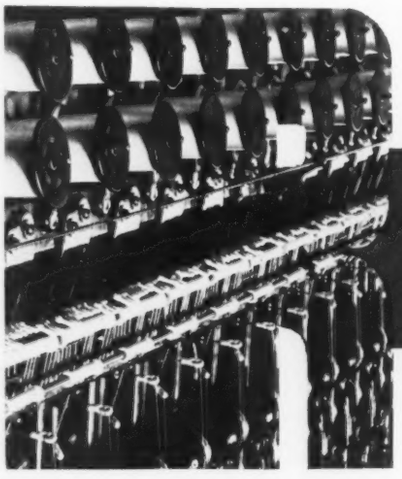
WEAVING CHANGES during the year have been progressive and evolutionary, rather than radical or revolutionary. A warp-tying machine which has been introduced cannot, it is said, produce "flats" or crossed warp ends. It will tie 250 to 300 knots per min. and can take worsted, woolen, cotton, rayon, spun rayon, or silk yarns without any adjustment for type or size of yarn. It can be used either at the loom or in a fixed position.

A new card-punching and lacing machine operates automatically and is said to make possible a five-fold increase in production.

Interesting is a warp stop-motion without steel drop wires, said to be suitable for warps of either coarse or fine yarns. A filling measuring stop motion operates to stop the loom just before a cop or bobbin is run out, without contacting in any way the filling or the filling fork. It is actuated from the cloth take-up roll and stops the loom after the roller has rotated a distance corresponding to the length of cloth woven from a full cop or bobbin. The new motion can be easily fitted to any loom, and eliminates start-up marks and pick finding, as well as reducing waste.

Likewise of interest is an automatic let-off motion for W-Type woolen and worsted looms, introduced early in 1939. No change is necessary in the weight from the beginning to the end of a warp, and regular loom beams may be used, substituting a large gear for the friction head. This motion is said to eliminate thick and thin places, and, since no friction bands or chains are required, the difficulties related to them disappear.

Also available is a pneumatic holder arrangement for the filling ends from the magazines of automatic looms. The principal feature in a new heddle frame is an arrangement of brace bar and connections which permits the bar to be easily removed without disturbing either warp ends or heddles. The new brace bar is attached to the heddle bar by a special locking device. It provides a rigid assembly said to eliminate sway in any direction.



RAYON and SILK

BIGGEST NEWS of 1939, as of the previous year, was the introduction of new and improved types of synthetic yarns and fibers. Nylon and Vinyon, two truly synthetic fibers which captured and successfully held against all comers the interest of textile men throughout the whole year, are now being produced in commercial quantities. Other recently developed or introduced synthetics, which were described in some detail in the September, 1939, and other issues of TEXTILE WORLD, include glass fibers; casein and soy bean fibers; corn meal fibers; new and improved kinds of viscose, acetate, and cuprammonium fibers; wool-imitation staple fiber; and other special types, such as discontinuous-filament and abraded filament yarns.

As might be expected, these new materials were not used in large quantities during 1939. Hence, the following reviews put major emphasis on handling

of older types of fibers and yarns. It is certain, however, that in the future synthetic fibers will demand more and more attention from textile men.

Throwing Progress

By O. P. SHELTON

FIRST EXPERIENCES with a recently introduced continuous-process filament rayon were had by rayon throwsters during 1939. So far, treatments and results in throwing seem to differ from those of other viscose rayons. Its running qualities seem to be excellent, but fabrics obtained differ somewhat in appearance from those produced from other rayons.

Most throwers running combination yarns last year had their initial experiences with abraded yarns. Some yarn was purchased already abraded and presented few new problems, other than in cleaning off loose fly which kept shedding. Other throwsters were asked to make abraded yarns, either by using methods already worked out by the rayon producers or by developing new methods.

There is no denying the wide interest of throwsters in the much-publicized Nylon, and already new problems have arisen in throwing this yarn into sewing thread. Now that the first Nylon hose are on the market, throwsters will soon know more about how this new textile material will affect their trade.

Use of larger packages than ever before was the trend for the throwing machinery installations and renovations made during the last year. In some instances, silk packages went up to 8 oz. There was also activity in balancing layouts. Experimental combination-throwing installations reached the almost incredible package size of 30 oz. The largest balanced-plant installation was from 18 to 20 oz., which is remarkable in itself, when it is remembered that 8 oz. was very recently thought by many to be extreme.

Running silk over-end on doubler-twisters can now be considered in the practical stage, following successful operation during the last year of machines using this principle. High-twist yarn still gives trouble, due to tensioning, but yarn with less than 5 turns per in. has been run in production at 10,000 r.p.m. As a result of increases in the price of silk, a tendency noted is reduction of turns to save on total yarn costs. In this connection, substitutes are being more and more frequently used in the welt and foot in hosiery knitting. This, naturally, has an affect on throwsters.

Considerably improved doubler-twisters made their appearance in 1939. One incorporates a balloon guide which traverses up and down with the motion of the ring rail, but not for the same distance. Its purpose is to compensate for the usual difference in tension that accompanies the ring-rail stroke. Another machine, which retains the unique principle of the ring staying aligned with the spindle, both when in operation or when knocked off, has an arrangement whereby the ring can be centered and leveled while the machine is in motion. In addition, the ring assembly can be removed instantly for cleaning or any other purpose. This machine also incorporates a more rigid and improved stop-motion knock-off.

Of assistance to knitters is a new tapered pineapple cone which throwsters can now supply. This cone permits a small taper at the top and a greater one at the bottom, thus increasing the amount of yarn that can be wound, and still giving maximum protection against underwinds. Other improvements to the winder on which this cone is produced are a larger-diameter cone, an improved cleaner, and provision for quick replacement of some wearing parts.

Use of self-stacking trays, as well as of movable platforms utilizing special lifting trucks, was noted last year in the modernization programs in many plants. A third type of stacking pin-tray was put on the market during the year. More roller-bearing spindles put in their appearance. An improved, inexpensive paper and metal shipping bobbin had considerable sale, some in larger sizes.

Experiments continue with a new type of oilless twister ring, using a different shape of traveler. It is believed these rings can now be bought in the smaller sizes, and it seems evident that sooner or later some type of oilless or, rather, oil-retaining ring will be proved practical.

AS TO 1940, the mild slackening of interest in combination yarns has many throwsters guessing what will be next for them, and for what they should next prepare. It seemed for a while that abraded yarn would be the next step—and it may still be. Again, 1940 will usher in commercial quantities of Nylon and Vinyon. What problems will be encountered here? To what extent will throwsters be called upon to process these yarns? Will they be expected to stretch the yarn in some cases, and thus take advantage of this property? How will the problems in running this yarn wet be worked out?

The Knitting Arts Exhibition in April is sure to bring more mechanical innovations and may introduce the long-promised headless twister package for higher-twist yarns. Certainly 1940 will be important to throwsters technologically. Probably it will give them a clearer picture of what their status will be, especially in regard to synthetics.

Weaving Developments

By H. E. WENRICH

NEW IN 1939 and of interest to rayon and silk weavers are developments in winding, warping, and weaving. A combination compensation-and-disk quiller tension introduced for use with delicate, as well as heavier yarns, is said to eliminate shiners, even with soft packages. A manufacturer of winding equipment has improved his product by introduction of a balloon-type traverse wheel, by changes in the tension device, and by other design advances. Two automatic filling winders were exhibited at the Southern Textile Exposition, last spring, and a third type is believed to be nearly ready for formal announcement.

For covering rubber a machine recently introduced features constant control of yarn elongation from beginning of package to end. The machine is designed to cover both light and heavy rubber, and can be obtained with either beam or spool feed, and either reel or tube put-up.

A new expansion comb for use in warp preparation has means of pivoting the free end of the comb to obtain perfect fit between sections, together with other features which increase the useful range of the comb and permit faster and more accurate setting up. Especially designed for no-twist and fine-denier yarns is a new gate-type yarn tension. The device is equipped with an electric stop-motion, and is said to be self cleaning and interchangeable with tension devices which have been in use on other models made by this manufacturer. A feature of another recently announced tension is that it can be used with either fine or coarse yarns, and at high or low speeds, without changing or resetting; it too can be installed on creels already in place. Incorporated in a new meter for measuring yarn tension is a dampening device to eliminate vibration of the indicating finger and thus assure accurate readings. A leasing device introduced during the year is said to make possible taking of a perfect lease in 2 min. on warps slashed on the cotton system.

Mechanical improvements in a drawing-in machine for warps of weaves of up to 6 harness are intended to make it stronger and sturdier, smoother and easier in operation, and broader in capacity than former models. To complement this machine, there was

brought out a specially designed harness frame and flat steel heddle.

A wire-dropping machine which, it is said, will rapidly place drop wires symmetrically on from two to eight banks, was likewise brought out during the year.

TWO NEW LOOMS for rayon fabrics made their appearance during 1939. One of these, intended for weaving heavy-weight cotton fabrics, as well as the wider and heavier rayons, is said to attain a speed of 182 picks per min. on rayons. This loom, which is available in either cam- or dobby-operated models, is so arranged that it can take beam heads of from 16 to 26 in. in diameter. In addition, it features heavier construction, reduced vibration, and numerous other design improvements.

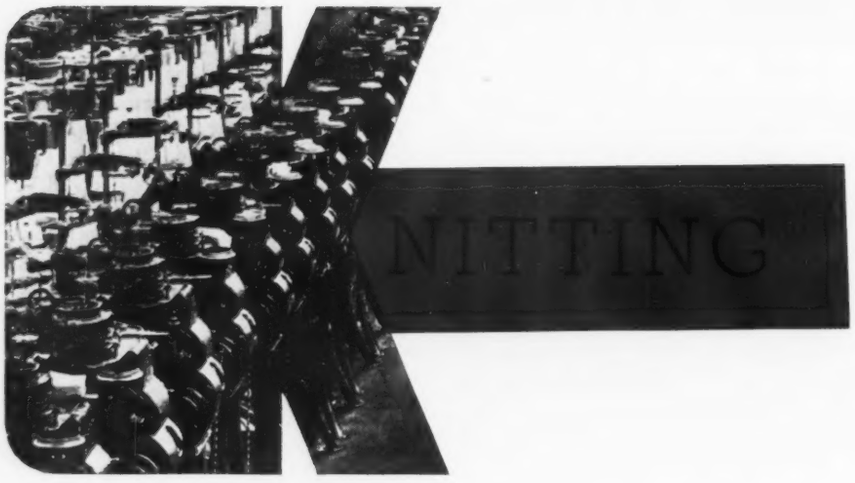
The other new silk and rayon loom features better than 90% efficiency at 174 picks per min. on panne satin; a vacuum yarn control which sucks loose ends of yarn into a container, thus making sure they do not get into the cloth or on to the floor; an inclining magazine creel so arranged that when the electric feeler motion indicates a change the magazine slants in the proper direction so that the bobbin is placed in correct position for the change without its being dropped; and other advances.

A ribbon loom introduced during the year produces ribbons up to $\frac{5}{8}$ in. in width at speeds as high as 950 picks per min.; picks per inch vary from 7 to 250.

For increased loom efficiency, there were introduced during the year flexible reeds, improved harness frames, a reinforced bumper strap, a new rawhide picker, new quills, and an oil for soaking pickers. Also brought out during the period under review was a shuttle without tension pads, mops, elastic bands, etc.; it is said to give more uniform tension and thus improve fabric quality. A bobbin-box hoist and conveyor-elevator recently placed on the market facilitates high-speed bobbin cleaning.

Uses for plastics in textile mills expanded with introduction of plastic gears for noise reduction, lubrication elimination, and long life; plastic lease rods; and temple rolls made from thermoplastic materials, for weaving of sheer fabrics—they are said to be unaffected by oils, acids, and moisture, and not to become glazed or slippery.

Among yarns, 75-den. crepe was widely used in 1939; one of its advantages is that it lends itself to a wide variety of constructions. Also important were 55-den. yarns, used in desirable satin constructions, and it is predicted in some quarters that yarns as fine as 35-den. may soon be used in quantities.



THE KNITTING INDUSTRY is in the midst of some radical changes. Machinery builders in this country are beginning to produce certain types of machines previously obtainable only from foreign sources—for example, tricot warp-knitting machines and a links-and-links half-hose machine. Small lots of Nylon stockings were put on sale last year, and by spring hosiery made from this new synthetic fiber should be commercially available in quantity lots. Stockings made from Vinyon and from a special type of viscose rayon are in the offing. The advent in the not too-distant future of full-fashioned type of circular-knit hosiery is a possibility.

There has been continued automatizing and speeding up of full-fashioned machines. With a new high-speed machine announced recently, production of 16 doz. pairs of three-thread, 45-gage legs in 8 hr. is possible. This machine is equipped with an automatic regulating motion, which consists of two main regulating units placed uniformly over the length of the regulating shaft so as to divide the regulating load equally between them. Other improvements embodied in it include a double-spindle type reinforced-selvage attachment for production of various heel designs, a chain motion for controlling automatically eleven motions and attachments, and an automatic draw-off motion.

Sharp advances in the price of raw silk have caused full-fashioned hosiery manufacturers to turn to rayon, as well as mercerized cotton. These yarns are used chiefly in the welt, heel, sole, and toe of the stocking. However, a movement is under way to develop a mercerized yarn suitable for use in the leg. Use of these yarns has called for modification of the knitting, seaming, and dyeing operations. Also, when rayon is used, to allow for its shrinkage, the seam should be looser than in the ordinary stocking.

Two other developments of interest to full-fashioned hosiery manufacturers are: (1) flexible carriers with the tube the same size as the spring and welded onto the spring, which are less cumbersome than the older models; and (2) a needle oil which does not dry out and gum up the working parts.

Among recently introduced half-hose machines are wrap and split-foot machines equipped with a new web take-up to make them completely automatic, and an elastic top attachment. A links-and-links machine, adapted for men's, women's, and children's hosiery, is capable of producing all links-and-links patterns in combination with double feed and plating, including three-color work. Any combination of ribs and different combinations of different portions, ribbed to the toe, can be obtained. For production of slack-length, elastic-rib-top socks on full automatic half-hose machines, there is a laying-in attachment which interlaces the rubber with the rib.

During the last year three new loopers were brought out—a coarse gage, 3½-point, 2-needle looper making a 2-thread, in-and-out stitch, for sweater work; a looper making a single-thread in-and-out stitch; and a fine-gage 40-point looper.

OUTERWEAR AND UNDERWEAR. For the manufacture of bathing suits, etc., a machine with 24 feeds and 24 large pattern wheels has been developed. A wide range of patterns in two or three colors can be produced on a new machine with 10 jacquard pattern feeds and 10 plain feeds; this machine can be used also for laying in rubber yarn. Double production, as compared with an 8-feed machine, is possible with a 16-feed ribbed-underwear machine announced during the year, while only 36% more power, 30% more capital investment, and no more floor space are required. For knitting striped jer-

sey, there is a new automatic machine with a gravity take-up that acts as a stop-motion; colors are thrown in or out of action and the stitch cam disengages automatically to relieve pressure of the needle on the stitch when the feed is out of action.

Double-overcheck patterns are knit on a single-head, spring-needle outerwear machine with an improved clutch and brake mechanism. Other new jersey machines include a 24-in., 16-feed, 14-cut wrap machine for making both horizontal and vertical stripes in various combinations of plaid effects; a 24-in., 32-feed, 18-cut automatic sinker-top striper for making plain and fancy fabrics; an 18-in., 24-feed, 28-cut loop machine for imitation chenille in plain and all-over designs; and a 12-in., 32-feed, 18-cut plain sinker-top machine for plain jersey.

Laying-in of light and heavy rubber in elastic materials is possible with a device applicable to any circular machine; it has a compensator or upright disk which relieves the strain from the rubber so as to feed it without tension to a shaping device before it is put into the fabric.

Of outstanding interest to manufacturers of warp-knit fabrics was the introduction at the Knitting Arts Exhibition of an American-made tricot machine of unusually high speed. Another warp knitting machine displayed for the first time was a 3-bar tricot machine which can be equipped with cut pressers to produce raised design effects. In conjunction with this, there was also shown a warper for warp-knitting machines, which has a constant warping speed of 1,000 yd. per min.

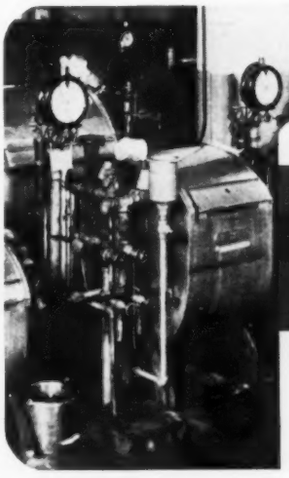
Double production is possible on a double-lock links machine which has extended snappers inserted in regular metal jacquard blades to control knitting. Positive latch opening movement is accomplished by specially constructed spring jacks, and there are six special steel yarn-carrier bars. Incorporated in a double-lock jacquard machine is an automatic needle-to-needle stitch-transfer from rear to front needle bed and vice versa.

One manufacturer brought out a knitting loom which will operate at 110 picks per min. without requiring changing of gears. Some of the parts of an improved knitting loom are made of aluminum.

A development in sewing machines was one for producing oval buttonholes with rounded ends in sweaters having narrow borders. Among other new sewing machines are an overseamer which operates at 6,000 r.p.m.; a high-speed faggoter operating at 2,200 stitches per min.; a corder operating at 4,000 stitches per min.; a machine for attaching tubing, split tubing, or lace running; and one for attaching fancy or novelty elastic to women's hosiery. Another new machine is for attaching narrow or wide elastic to hosiery. With a label cutter developed in the last year, one operator can cut and fold 2,500 labels per hour.

Stop- and protecting-motions of several types have been brought out. One is an electric needle saver which swings out in an arc away from the needles to prevent bending of adjacent needles. Other electric stop-motions include one with individually adjustable arms, and one which will stop a 12-in. machine within two feeds when the yarn breaks at the feed. A new latch needle which will not shear the yarn eliminates fuzziness in fabrics. Among recent accessory developments are an automatic water-leveling unit for full-fashioned machines, a sectional conditioning trough, and a snarl eliminator for conditioning troughs. A hosiery mill man has developed an attachment for the Mullen tester, which overcomes any error in uniformity of stretch of hosiery or other knit goods during testing.

One new foreign device which, while still in the patent stage, is interesting in its potentialities, offers new means of actuating the needles of a jacquard machine or a flat-bed knitting machine, or the punches of a card-cutting machine. A representation of the design to be produced in the cloth is scanned by an electro-mechanical device, an electro-magnet incorporated in the device actuates certain control members, and these in turn actuate the machine parts mentioned above.



FINISHING

OF THE NEW FINISHING processes announced in 1939, those of unusual interest include two new bleaching methods—one a continuous peroxide bleach, and the other involving the use of an entirely new type of chemical; a continuous method of dry-cleaning woolens and worsteds which may replace conventional methods of cloth-scouring; and several finishing processes designed to increase the durability of silk hosiery. A new method of high-speed printing which has just reached the commercial stage is described in detail elsewhere in this issue (page 122). Use of synthetic resins, cellulose derivatives for imparting permanent finishes, and substantive softeners and other cation-active compounds has increased, and a variety of new chemicals have made their appearance. Considerable attention has been given to the development of suitable dyes and dyeing methods for use in conjunction with Nylon, Vinyon, and rayon staple.

In addition to new machines employed in certain of the processes mentioned above, over 25 other improved types of equipment for use in the dyeing and finishing industry have been announced in the last twelve months.

The continuous method for dry-cleaning of woolens and worteds employs a special type of equipment with which tar, oil, paint, fugitive stains, chalk marks, and many other extraneous substances are removed from the cloth by means of a chlorinated solvent, such as trichlorethylene. This process is said to eliminate one of the most common causes of streaky, cloudy, and shaded fabrics; to leave the cloth in excellent condition for fulling and subsequent processing; to speed up wet-finishing operations; and to have several other advantages.

The continuous peroxide bleaching process is suitable for light- and medium-weight cotton goods and is believed also to be applicable to a wide range of fabrics containing either filament rayon or spun rayon. Equipment

for carrying out the process is comparatively simple, consisting essentially of a specially designed heating tube and J-box. For bleaching light-weight cotton fabrics, the cloth, after having been mercerized in the gray and washed, is run wet through a solution of hydrogen peroxide and then in rope form is passed through the heating tube, where it is heated with steam to a temperature of 180 to 200° F. Next the fabric is piled in the J-box, which is of sufficient capacity to permit a reaction time of 1 hr. with a cloth speed of 100 yd. per min. Leaving the J-box, the goods are soaped in an ordinary continuous washer, rinsed, and dried.

So new is the sodium chlorite method of bleaching that its full potentialities are not yet known. However, it has already found application in bleaching spun rayon and pigmented fabrics, cotton-rayon mixtures, velvets, laces, and certain cotton fabrics. When the chemical used in the process is acidified, it liberates chlorine dioxide rather than chlorine. It can be employed in acid solutions at temperatures as high as 200° F. without degrading cellulose or cellulose acetate. As a result, scouring and bleaching can be carried out in one bath at high temperatures by using the material in a solution acidified with acetic acid and containing one of the newer synthetic detergents which are effective under acid conditions. It is believed also that the process can be adapted to treatment of wool.

Two new methods of bleaching wool have been announced—one developed by a mill in this country; the other by a firm in Great Britain. The first is a continuous process made possible by use of a special type of conveyor which carries the skeins through the sulphur chamber at speeds ranging from 4 to 24 in. per min., depending on the grade of wool and the conditions in the sulphur chamber. The other process makes use of liquid sulphur dioxide, which is fed into the bleaching chamber with the aid of a heating device to prevent solidification of the sulphur dioxide.

Several processes designed to increase the durability of silk hosiery were newly developed or came into prominence during the last year. In these processes, chemicals, such as synthetic resins or rubber or rubber-like compounds, are applied to the hosiery for the purpose of increasing the elasticity and resistance to snagging.

Unusual interest has been displayed in a spray and stencil process for producing vat-color prints originally developed for use by garment manufacturers and recently made available to the textile industry proper.

Increased use of rayon staple and introduction of Nylon and Vinyon have created a need for dyeing procedures suitable for use with these fibers. It has been found that a selected range of formaldehyde-aftertreated direct dyes are economical and simple to apply to viscose type rayon staple and have satisfactory fastness to light and washing to be suitable for many purposes. An investigation of some 500 domestic dyes indicates that those suitable for Nylon include selected basic, acid, chrome, and acetate colors; in general, direct, developed, sulphur, vat, and naphthol colors are less satisfactory. Several companies are now carrying out experiments on dyeing of Vinyon, and it is expected that in the near future at least one of the leading dye manufacturers will announce a special method making use of selected acetate dyes.

With the growing use of covered-rubber yarns in a widening variety of fabrics, finishers are finding it necessary to modify their usual dyeing and finishing procedures in order to prevent damage to the yarn by light; heat; oils, fats, and greases; solvents; and other natural enemies of rubber. Mill experiments now being carried out indicate commercial production in the near future of solid-color effects on cotton piece goods with resin-pigment colors, similar to those which have rapidly gained in favor during the last year or two for use in printing. Application of ordinary dyes from a resin-solvent solution is another possibility.

NEW CHEMICALS introduced during the twelve months include a number of cation-active compounds, which differ from soaps, sulphonated oils, fatty alcohol sulphates, and other anion-active compounds, in that the effective part of their structure is the positively charged part of the molecule. Many of the cation-active compounds are substantive to cellulose. Among applications for them are imparting durable soft finishes and water repellent finishes, stripping vat and azoic dyes, treating textiles which are to be impregnated with latex, and aftertreating direct dyeings to increase fastness to washing.

Use of synthetic resins in the finishing industry continues to grow and several new types have been developed. One of these is a soft, thermoplastic resin which can be employed in conjunction with starch, softeners, talc, etc., for pure finishing or backfilling. Some are compatible with mineral oil, latex, nitrocellulose, and ethyl cellulose, thus affording opportunity for development of entirely new types of finishes. A recently introduced solvent-free resin dispersion when used in high concentration deposits a continuous thermoplastic film which increases the tensile strength of textiles, and in low concentration imparts fullness and body to cotton, spun rayon, or wool fabrics.

Other new chemicals include a warp sizing compound for spun rayon which can be used in conjunction with the starches or gums ordinarily employed; a water soluble warp sizing compound which can be completely desized by soap and water; dispersed waxes for use in warp sizing; and a synthetic gum for use as a warp sizing agent or thickener for printing paste. New also is a wrinkle finish which—when sprayed, knifed, or rolled on the fabric—dries to a wrinkle finish of uniform texture.

New among detergents are a synthetic soap which is chemically neutral and which can be used in neutral, acid, or alkaline solutions; two refined fatty acids for making liquid soaps; a fatty alcohol sulphate said to have excellent detergent properties; two ammoniated fatty-acid soaps which can be used as detergents or emulsifying agents and which also give water-repellent films when dried on the fabric, a highly concentrated boil-off oil; and a dyeing and degumming assistant for use in silk hosiery dyeing to aid in removing the gum from seams, heels, and toes of the stocking. Announced also were a mothproofing compound resistant to laundering and dry-cleaning; two flameproofing compounds; and anti-oxidant which can be added to soap to retard rancidity, discoloration, etc.; two compounds for use as plasticizers for coatings and carriers for dyes; a water-soluble wool lubricant; a water-repellent for hosiery; chemicals for treating dyed or printed acetate fabrics to inhibit gas fading; and a delustrant for rayon.

The continuing efforts to substitute continuous for batch methods and to combine operations are reflected in development of a multi-compartment dry-fulling mill, each compartment of which can be loaded or unloaded without stopping the others; a combination shrinking and conditioning machine for woolen and worsted fabrics; and a finishing unit for pile fabrics which permits any or all the operations of shearing, beating, tigering, brushing, steaming, lustering, and drying to be carried out in one run. The trend toward higher speeds is exemplified by a new tenter dryer which permits drying of 12-oz. woolen fabrics at the rate of 40 yd. per min. Another tenter dryer is so designed that the cloth passes through the chamber in vertical loops, rather than the customary horizontal loops, saving about 23% in floor space.

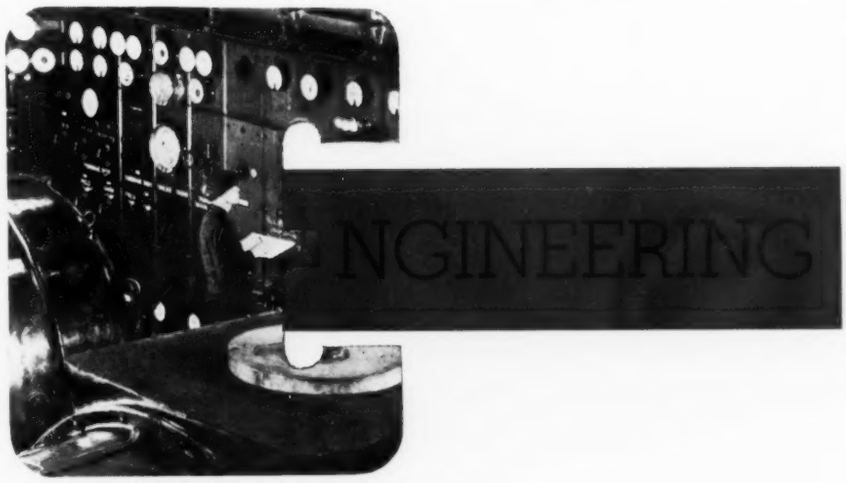
From England come reports of a cloth washer said to make use of an entirely new principle of washing; with this machine the fabric passes at full width between two venturi-shaped slots or nozzles through which the detergent

solution is forced at high velocity in the form of two equally opposed streams that impinge on the passing cloth at the same point. It is stated that very rapid cleaning and rinsing are obtained and that the amount of water required for rinsing is greatly reduced.

That stainless steel continues in favor in construction of dyeing equipment is evidenced by the fact that this material is employed in four new dyeing machines brought out during the last twelve months. One of these is a stock dyeing machine, two are for package dyeing, and one is a reel type machine for woven and knitted fabrics.

Two useful devices for finishing-plant use are a fulling-mill shrinkage-measuring counter, and a pneumatic loading system for adjusting and recording the pressure of calender rolls. Other new or improved equipment includes a shear with automatic stop motion, a selvage trimmer with loop clipper, a power-operated perch, an inspection machine designed for convenient handling of large rolls up to 32 in. in diameter, an improved high-speed steaming and finishing machine for knit goods, a high-speed slitting machine designed to operate at speeds up to 1,500 yd. per min., and a rotary cutter with automatic air doffer.

With the various new fibers and fabrics coming to the fore, and with many new processes emerging from the experimental state, the next twelve months promise to be busy but interesting ones for technicians and operating executives in the dyeing and finishing divisions.



DURING THE LAST YEAR many power units using high steam pressures and temperatures have been installed, many of them as topping units. These high-powered installations require costly equipment, but, since so far they have invariably served to lower production costs of steam and electric power, the extra expense appears justified. The limit point would seem to be reached when fixed charges become top-heavy.

Intensive work has been done on development and improvement of automatic control of combustion and of electric power generation. Two important ends had to be achieved—first, the control equipment had to be made dependable to invite confidence and use; second, it had to be made long lived. These two objectives are being achieved.

In textile plants desirable steam pressure and temperature limits are 600 lb. and 750° F., but in utility stations these have been raised to 1,200 lb. and 900° F. Above the latter temperature, the problem of creep becomes serious and prohibitive. Even a relatively small increase of 50° in steam temperature above the critical temperature may bring about serious and destructive changes in the materials that comprise power plant equipment. In this connection it is interesting to note that the introduction of small amounts of molybdenum into the composition of steels permits use of higher temperatures.

It was to be expected that with higher pressures and temperatures would come new difficulties to be met and overcome. In the boilers, there have been scale formation and carry-over, and as a result of the latter there have been scale deposits on steam-turbine blades. Means of avoiding scale formation will be discussed in a later paragraph.

Carry-over has been eliminated by maintaining a lower total-solids concentration in the boiler water and by more frequent washing out of the waterwall headers and mud drums. This, of course, means that the boiler must be taken off the line more often. Elimination of carry-over means avoidance of turbine-blade deposits; where these occur, steam consumption per kilowatt increases and kilowatt capacities decrease. The majority of these deposits have been removed by passing low-pressure steam and water through the slowly revolving turbine. In one particular case of a hard silicate deposit, fly ash was successfully used as a scouring agent.

Many power plant engineers have found that, by operating these high-pressure, high-temperature boiler units at a somewhat lower rating than advocated, slag, scale, and carry-over troubles can be decreased. This plan is gaining favor, although such reduced-capacity operation is not always possible.

THE GREATEST FIRE and explosion hazard connected with oil- or pulverized-fuel-burning furnaces probably occurs when for some reason the flame is lost and fuel continues to be fed without being burned. Photo-electric detectors have been developed, the function of which is to give notice of failure of the flame. Such equipment can simply give a warning signal, or it can be so connected as to shut off the feed.

Some serious fires have occurred when through leakage or rupture of the lubricating system of a turbine oil has come in contact with piping conveying high-temperature steam. This temperature, it must be remembered, is well above the flash and fire-test points of the oil. Designers have sought to prevent this by isolating oil piping in ducts so that any escaping oil cannot come in contact with steam piping. In an extreme case, the oil-circulating and storage equipment was mounted at the generator end of the unit instead of at the turbine end, as is customary.

Soot blowers have also been improved. Soot-blower elements in high-pressure, high-temperature boilers, particularly those using pulverized coal, are exposed to high temperatures and to erosive action of fly-ash; hence, they have a relatively short life as compared to that of similar elements in boilers operated at lower pressures. These elements are made of alloy metals and are expensive; therefor power-plant engineers have been much concerned about the high maintenance costs. They have also found that elements which are permanently located in the first pass of the boiler may fail to remove much of the slag that forms on the tube surfaces facing the flame and on the side farthest from the soot-blower jets.

Opportunity for betterment has been recognized by soot-blower manufacturers, and they have developed the so-called retractable type. In this type the element, which is very short, is withdrawn from the combustion space when it is not in use. All events of the blowing operation take place automatically

at the proper time by the simple procedure of turning the head wheel. In succession, the blower element is introduced into the combustion space, the steam is admitted, the single fan-shaped jet is revolved through an arc that sweeps a certain section of the tubes, the steam is shut off, and the element is withdrawn into a pocket in the boiler-setting wall. One jet is introduced through the rear or target wall and another passes down through the roof. In each case they enter the furnace between two adjacent wall or roof tubes. Saturated steam at full drum pressure is used to supply the blowers. Results obtained are better removal of slag and fly-ash deposits, and lower maintenance cost due to longer life of the elements.

Some users of high-pressure, high-temperature boilers, to which reference has already been made, are having trouble due to formation and deposit on internal surfaces of tubes and drums of sodium-aluminum-silicate scale. Extensive studies are being made of the causes of this formation and of methods of prevention. This scale is resistant to heat transference, even in thin layers, and usual methods of treatment for scale prevention and removal are of no avail.

One theory as to the reason for its formation is that it is related in some way to so-called steam-binding, a condition in which the ratio of steam to water—as, for instance, in a circulating tube—is above the critical point; i. e., there is an excess of steam. This condition in turn is attributed to improper circulation. In some instances where scale of this type has occurred, with subsequent tube trouble, structural changes in or additions to the circulating tubes have overcome the difficulties. A procedure strongly urged is to remove all silica which may exist in raw water, either in crystalloidal or colloidal form, before the water enters the boiler. Coagulation methods seem to be best suited for removal of the silica, since the universally accepted theory is that such removal is brought about by adsorption. Ferric sulphate, magnesium sulphate, and sodium aluminate are all efficient for this purpose.

SPRAYING OIL ON COAL that is to be used in pulverized-fuel-burning furnaces has been found to be of advantage. The amount of oil added varies from 4 to 6 qt. per ton. Oil-treated coal tends to shed water, and thus does not absorb moisture when exposed to heavy rains in storage or in transit. Pulverized coal with high moisture content tends to stick in the bunkers, chutes, scales, pulverizer mills, and feeders, and is very troublesome. Frequently, a burner loses its flame due to stoppage of its supply of coal.

With the increasing use of oil-treated coal has come the problem of the effect of the oil on rubber-covered conveyor belts. This has been found to be quite marked in some cases, the rubber becoming softened to the extent that it slips on the drums. The trouble, where it exists, can be avoided, it is stated, by the use of belts covered with a synthetic rubber-like material.

With the increased number of high-pressure, high-temperature boiler and turbine installations in textile-mill power plants, has come a more general demand for electrical welding equipment, since A.S.M.E. codes, state boiler board rules, and requirements of boiler-insurance companies require that welding repair work on such units be of the electric type. In the mill proper, there is also a growing demand for electrical welding, particularly in connection with repairs on stainless-steel equipment, such as dye kettles, tanks, washers, and containers. Gas welding is not advisable on stainless steel, since the extensive heating of the metal may result in changes in the structure of the metal that render it much more susceptible to corrosion, unless the parts can be properly annealed afterward. Frequently this is not possible. During the year manufacturers of electrical welding units have developed smaller, more easily portable, and lower priced outfits for mill work. These are becoming increasingly popular.

An improved method of spray coating tanks, vessels, and miscellaneous containers, using an oxy-acetylene torch, substitutes a fine powder for wire of the metal with which it is desired to coat the surface. Thus, hard rubber, metal alloys, plastics, and resins of all kinds can be applied. The absence of all moving parts, which were necessary in the wire type of sprayer, is an additional advantage. As before, an oxy-acetylene torch is used; an additional hose leads from the powder container, a vent hole at the torch controls the feed of the powder, and a compressed air line supplies the suction force.

Further progress has been made in development of drip-proof, splash-proof, and lint-proof motors; and also of those for use in hazardous gas atmospheres.

A portable var-meter has been developed for measurement of vars without cutting into circuit lines. (A var is the reactive volt-ampere or unit of wattless power, and the determination of such is of value in locating circuits of low power factor). Many textile-mill circuits are of low power factor due to the varying load on the motors brought about by idle machinery, underloads, and other causes. Use of a var-meter makes possible the determination of where capacitors can be used to good advantage for raising the power factor.

Variable-speed devices are being used more extensively, particularly in connection with finishing machinery. By their use, speed of machines can be increased when permitted by the weights and textures of the fabrics being processed. Units are obtainable which combine motor and variable-speed device in one housing.

Continued expansion in use of fluorescent lighting has been noted. A number of manufacturers have brought out improved fluorescent fixtures and additional types for special applications. New auxiliaries have been introduced which are said to correct power factor and reduce flicker to a minimum.

HIGH-SPEED cloth dryers have been brought out, utilizing the variable speed principle. In these dryers, sectional heating units made up of small-size copper tubing on which are mounted aluminum fins replace the long lines of ordinary iron or steel pipe as the carrier of the heating steam. Heat transference in the newer type of coil is very rapid, and the coils will safely carry 200 lb. pressure. Many of the new dryers are so constructed that the cloth moves vertically rather than horizontally; in this way floor space required for a definite drying capacity is reduced. In many instances, controls of speed and temperature of the dryer, of residual moisture in cloth, and of the exit width of fabrics are mounted on a panel at the entrance end of the dryer, and can be varied at will.

An interesting recent development is the use of a special synchronous generator, attached to a variable-speed steam turbine, for driving a number of synchronous motors which operate a multiple-unit range. This drive makes possible varying the speed of the range as a whole through wide limits, but at any operating speed maintains each unit at approximately the same speed. Any desired variation in speed between two units can be obtained by use of simple variable-speed drives of narrow limitations.

Textile plant engineers, with their power-plant forces and manufacturing-plant maintenance crews, have had a busy year and are anticipating an even busier one in 1940. The cost per unit of steam and electric power is being lowered; this saving, when passed on to the manufacturing departments, means a lower total cost of the finished product. Those mills in which this and other modernization work is being intensively carried on are in the most advantageous postion in obtaining business to keep them operating at full capacity.

COTTON—Manufacturers of cotton began to pry themselves loose from a dull and profitless market during the first half of 1939. The fillip which the beginning of war on Sept. 1 gave the market completed the job. The last quarter of the year witnessed the most extensive manufacturing activity since 1929 with the exception of only two brief peaks in that interval—the pre-NRA boom in 1933 and the short-lived prosperity of early 1937.

The year 1938 saw progress in many promotional efforts to expand the utilization of cotton.

Dissatisfaction over the raw cotton futures contract led to the drawing up of a new contract which entered trading on the New York Exchange on Aug. 1 and which will run concurrently with the old contract for one year from that date. Among various changes it is noted that $\frac{13}{16}$ in. cotton is used instead of $\frac{7}{8}$ in.

Cotton goods met the war declaration by recording the most active two weeks ever experienced. Much of the concentrated demand was to restock depleted inventories and to protect against future uncertainties. After the first rush, a moderately quiet and firm period ensued. Absence of long-term commitments was a guard against likelihood of a speculative break. Large supplies of raw cotton carried over from previous seasons shielded the goods market from any excessive rise in raw material. In fact cotton remained on a fairly even keel until an upturn at the end of the year. Sales of mercerized yarn increased 34% during 1939 over 1938.

The industry met the wage-hour law face-to-face and the textile committee No. 1 set up 32½¢, which is still under protest from portions of the South.

WOOL—Although there was early evidence that wool was working slowly upward in price, the first eight months of 1939 gave no inkling of the sharp change which was to come in September. Through the early part of the year there were periods of small advance followed by steadiness and dullness. When wool goods were opened for fall a year ago, prices were up 7½ to 12½¢ and there were further advances of 5 to 10¢ a yard in May. In July tropicals for 1940 were up 12½ to 17½¢ from previous year, and some carpet prices were advanced on Aug. 25.

The fireworks began with the start of the war, and during the first part of September wool advanced 60%. Fabric quotations were withdrawn, and, when reinstated near the end of that month, showed advances of 35 to 50¢. Wool blankets were up 12½%. It became evident in October that the rise had been somewhat overdone and raw wool receded 10%. Prices on goods went down 10 to 15¢ per yard. However, it was expected at time of writing that the opening for fall 1940 will be 35 to 45¢ over the spring opening last fall, not only because of strength in wool but because of the 7 to 10% wage advance effective Feb. 5.

There was no striking style development to lead the market, but there was continued evidence in men's wear of a shortening in the spring season, and an extension in the season for summer specialties.

RAYON—Outside of the months of March, April and May when some curtailment was evident among primary rayon producers, the year 1939 was one of almost continuous improvement. Prices were on a gradual uptrend and demand steadily broadened.

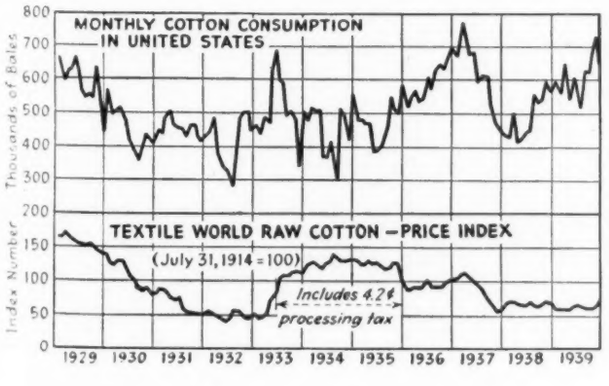
Impact of the war boom on rayon did not produce such marked effects as on other textile fibers. It brought principally greater conservatism on the part of producers, with the booking period cut from 90 to 60 days in order to stabilize price and guard against speculation.

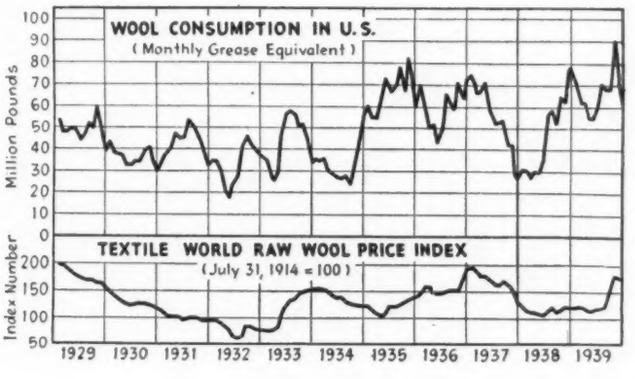
As described on page 124 of this issue rayon production totalled new high figures last year. Filament rayon surpassed 1938 production by 29% while staple rayon, the star performer, went over the 1938 figures by 77%.

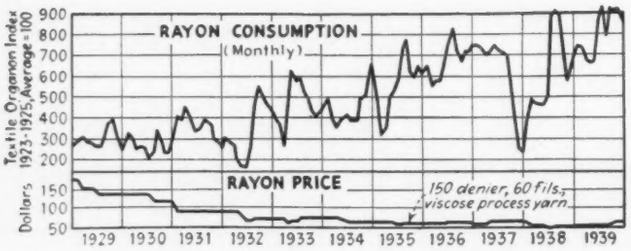
The finer deniers in filament rayon established themselves early in the year as valuable property, and during the spring the 45-denier advanced from 93¢ to $1.05, while the heavier yarns did not record a gain until September. A strike in one of the acetate plants during the spring produced a tight situation in that growing fiber.

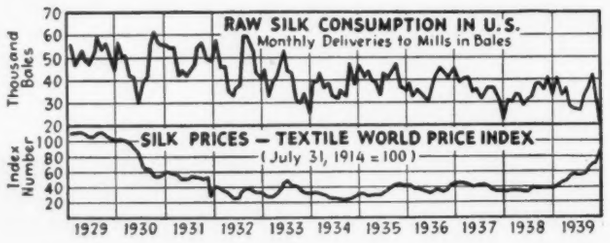
Among rayon fabrics, twills, serges, sheers and taffetas were important. The proportion of total synthetics which went into the woven and into the knitted fields remained approximately unchanged from 1938.

The year will go down in history as marking the introduction of non-cellulose synthetics such as Nylon and






RAYON CONSUMPTION
(Monthly)
Textile Organon Index 1923-1925 Average = 100
RAYON PRICE
Dollars
150 denier, 60 fils, viscose process yarn
1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939


RAW SILK CONSUMPTION IN U.S.
Monthly Deliveries to Mills in Bales
Thousand Bales
SILK PRICES — TEXTILE WORLD PRICE INDEX
(July 31, 1914 = 100)
Index Number
1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939

Vinyon, and others that are barely out of the laboratory.

SILK—Such a performance as silk staged in 1938 has rarely been seen in the textile market. Percentage rise from January to January was about 130%. The first peak was touched in May, and, after a slight recession, the months of June, July and August were relatively uneventful. September and October saw another great upward swing, and finally the last half of December gave the year its top altitude. There have since been reactions to a lower level, and, although there are strong adherents on both bullish and bearish sides, it seems reasonable that prices will be stabilized considerably under the 1939 high point.

Whether the consuming market for silk wants high or low priced silk, matters little in the almost unanimous agreement of all users that they want a less acrobatic raw material. The stability in price evidenced by the synthetics is a tremendously strong point in their favor quite outside of their physical characteristics.

About 75% of the silk consumed in this country last year went into hosiery. At each point in the rise, additional weaving interest was lost.

The outlook remains uncertain. Taking the silk demand-supply position as a whole, one authority sees a deficit for the first six months of 1940 of 60,000 bales, while another authority counters with belief in a surplus of 100,000 bales due to hoarding in Japan.

HOSIERY—A most difficult year for hosiery manufacturers is behind them. Those for whom silk is the principal raw material, waged a losing battle against rising prices. Full-fashioned prices lagged behind raw silk costs by a wide margin, and profits-margins were virtually non-existent. Although raw silk rose about 80¢ a pound during the first four months of the year, there was no change in standard hosiery prices until May when such lines were raised 35¢. The recession in silk during the summer was a further aggravation, because the ensuing September rise caught knitters unaware. A further advance of 50¢ in hosiery in late September brought the level which held through to the end of the year.

Half-hose experienced a most stable year. Business was good in the early spring, dull in the summer and considerably improved in the autumn. Half-hose novelties, including slacks and elastic tops give promise for 1940.

UNDERWEAR—There was steady improvement through 1939 in the underwear field. Volume increased as the year progressed, and even in July when other markets were somewhat dull, there was sufficient strength to warrant the withdrawal of prices on fall goods in numerous quarters and to support their reinstatement at fair advances.

Success in developing style variations from the old-time staples has resulted in broader markets. For the metropolitan winter trade, shirts and shorts of medium weight have been successfully introduced to combat the previous tendency of men to wear the same weight underwear the year 'round. New styles in buttonless drawers of knee and ankle length, together with zipper-fastened shirts and drawers, are further evidences of new product development.

At the turn of the year, the underwear situation had been strengthened by the upturn in raw cotton and confidence of buyers.

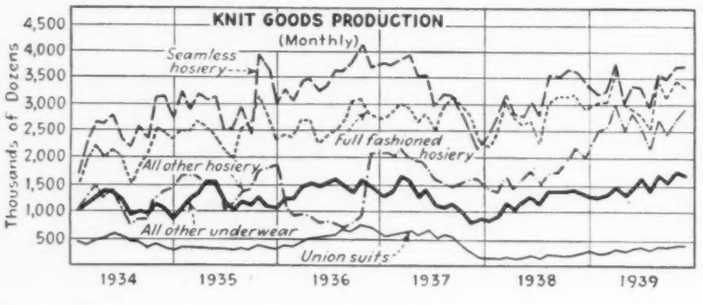
OUTERWEAR—Adaptation to change has been a keynote of the knitted outerwear field for the last twelve months. Old-line sweater mills had discovered that although there is a field for the all-knitted garment, they could sell additional quantities by making up combinations with woven materials.

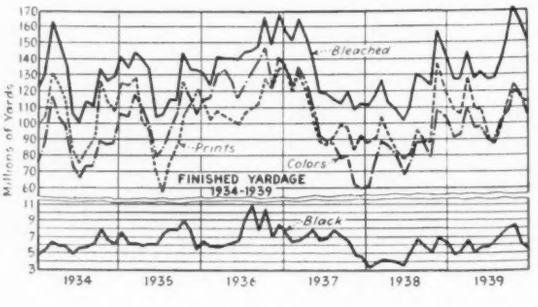
Outerwear mills have effected diversification in fibers by utilizing cotton and spun rayon in addition to wool. Particularly since the sharp advance in worsted yarn of last September, when knitted sweaters were likewise advanced $2 to $3 per dozen, there has been greater use of substitute fibers.

Wool bathing suits made a comeback last summer, and there was widespread sale of wool knit or elastic wool-fabric trunks. Sweater coats were successfully merchandised for fall and winter. The outlook is fair, the field should respond to promotional efforts.

FINISHING—With activity in the cotton finishing industry well above normal last year, many of the best plants were able to show a profit. Unfortunately, the price situation is still so far from satisfactory that the industry as a whole can prosper only when business is booming. Accordingly, the need for upward revision in prices continues acute. Total activity in 1939 was 18% above 1938. Biggest gain was in plain dyes, with a 20% increase. Production of whites and prints rose 17 and 15%, respectively. Total volume processed by cotton finishers in 1939 is estimated by National Association of Finishers of Textile Fabrics at 4,344,065,000 yd., against 3,682,196,000 yd. in 1938, 4,182,841,000 yd. in 1937, 4,682,295,000 yd. in 1936, and a known volume of 3,881,596 yd. in 1934. TEXTILE WORLD's estimate is 4,700,000,000 yd. in 1929, and 4,100,000,000 for 1923–25 average.

NOTES on charts below—
Knit Goods: Bureau of Census figures show trends, not totals as they are for only 80 to 90% of industry.
Finished Yardage: Data from Natl. Assn. of Finishers of Textile Fabrics.





Textile World

FEBRUARY, 1940

THE NEXT DECADE IN TEXTILES

Textiles in 1950

A PLAY WAS WRITTEN about a man who, on New Year's Eve, wished he could see the London *Times* of a year hence. He wanted it for stock-market purposes, of course. A good fairy granted his wish—and he read in the *Times* his own obituary.

Personally, we would like to see—and to have our readers see—the TEXTILE WORLD a decade from now. Many of them, we are afraid, would read their own business obituaries.

That's bad, of course—and yet it has its points.

If some of the textile casualties of the last decade could have seen what was ahead, they might have done something about it.

So let's look ahead.

A decade from now, those of us who are still alive may find this kind of a textile industry:

In 1950, synthetic fibers may account for 25 or 30% of the total consumption of textile raw materials, against 8% in 1939. Specifically, filament rayon consumed may total 500 million pounds, against 362 million in 1939. Rayon staple fiber consumption may total 700 million pounds, against 100 million in 1939. Acetate rayon will have a greater percentage gain than viscose. The new synthetics—Nylon, Vinyon and others not yet born—will be used in quantities which even this writer, with his yen for prediction, hesitates to estimate. Unless total textile consumption can be boosted in proportion—which is possible but not probable—the increase in synthetics will be at the expense, largely, of cotton and wool. Silk will dwindle still further, and particularly will lose the commanding position it now enjoys in full-fashioned hosiery; however it will retain a limited place as a luxury fabric in women's apparel for those who can afford it. The synthetic fiber march will not have reached its zenith a decade from now; it will be on its way to complete domination of the textile field—say certainly by the year 2000.

In 1950, several hundred million dollars worth of the textile equipment now in place will have been scrapped. It will have been replaced largely by improved versions of now existing standard equipment—the improvement being in the direction of greater speeds and higher production, more precise operation, reduced labor factor, and higher quality of product. A not inconsiderable part of the replacement, however, will be in the form of startlingly new equipment eliminating many of the steps and operations of today—by-passing, in certain cases, the entire processes of spinning and weaving. Just as will be true in synthetic fibers, this trend will be on the way up a decade from now, and possibly heading toward a complete transformation of the industry's equipment within a half-century.

In 1950, many mills will have moved from one geographical section to another, and many new mills will have been built in sections not previously accustomed to textile manufacture. Probably no wholesale transmigration of a branch of the industry, such as occurred in cotton textiles in the '20s, will occur in the '40s—but, there will be sufficient shift in *all* branches to represent considerable of a stir. We would hazard the guess that the woolen and worsted industry will get the biggest jolt in this textile trek of the next decade—and that the knitting-mill migration will continue during the first part of the decade, and then be arrested, as evidence of over-capacity accumulates. Such additional movement as occurs in the cotton industry will be that of staple-goods manufacture farther into the Deep South. A trend westward, with the Pacific Coast as its ultimate objective, will start in textile manufacture during the next decade.

In 1950, there will be more rigid but fairer labor legislation, of both Federal and State character, than any we have today. Wage-cutting will probably have passed out as a zone of price-competition. The shorter work-week will have proved that it is here to stay. An improved form of legislation and administration will have replaced the NLRA and NLRB; both the latter will be remembered only for their crudities. Villages will either no longer be owned by mills, or will be on a self-sustaining basis.

In 1950, merchandising changes will have taken place involving increased projection of textile manufacture toward the consumer; vertical integration will have set in to make that possible; production and merchandising organizations will no longer operate in separate and distinct spheres. Here, too, this trend will be on the up-and-up in 1950—headed toward probably complete transformation by the end of the century.

In 1950, nobody will be doing business at the same old stand. A great many things will have changed, and there will still be a great many changes ahead. Whether this change is all for the good or the bad depends upon one's point of view. Anyway, there's nothing to do about it—except to get ready for it, keep in step with it, and like it.

Douglas G. Woolf

THE NEXT DECADE IN TEXTILES

How to Make Money Make More Money

A NEW DECADE starts in textiles. If we were famous enough to be a guest on "Information Please," we would be rated wrong for that statement since actually the new decade starts Jan. 1, 1941. However, it has become standard practice to think of decades in terms of the '20s, the '30s (and who can forget either of them?) and now the '40s.

What have the '40s in store for textile manufacturers?

At the moment, the textile industry is showing a profit. There's nothing in the picture to arouse hope, or fear (depending upon one's point of view), that the era of the "mill barons" will return. There's just enough in the picture to supply a basis for hope that textile manufacture may pass out of the sick-industry class and become a normally promising field of endeavor for employers and employees.

How can that hope be transformed into realization?

To answer that question, we present in the following pages of this special section a series of articles attempting to answer the question: "What's Ahead in Textiles During the Next Decade?"

We have tried to avoid the two extremes, both dangerous: Sensational speculation and wishful thinking.

In selecting subjects, we used as a guide the "editorial inventory" which this writer set down in the first issue of TEXTILE WORLD in 1930 (just a decade ago) when we assumed the chief-editorship of this publication. We are reproducing that "inventory" on the next page. Frankly, we are both amazed and pleased at the progress that has been made in many of the directions indicated 10 years ago. We are also chagrined at the lack of progress made in other directions.

In this discussion, and in the articles that follow it, we have used as our yardstick: "Making Money Make More Money." In other words, how can textile manufacturers individually, and the textile industry as a whole, invest what profits it is making, or may make, in order to secure further return on the investment? For it must be realized by now that this industry has no good fairy—no Santa Claus. If it is to make money, it has to invest its own, wisely. Too often, in the past, there has been the belief that some kind spirit would turn the clock back and recapture for textile manufacturers the profitable era which they or their ancestors once enjoyed. That just isn't so. This is a hard-boiled economic era. Everything has to be done the hard way—or not at all.

WELL, WHAT NEXT? In attempting to answer that question, we shall not follow the order of our 1930 "editorial inventory"—nor shall we itemize all of its sections. Some of them have gone by the wayside; others have altered their positions of importance. Nor in the brief discussion below do we cover all the subjects discussed in succeeding articles, nor do we necessarily follow exact order of present significance. But, roughly, here is the picture for the next decade in textiles:

EDITORIAL INTRODUCTION

MODERNIZATION: There is no form of investment which a mill can make, the potential return on which approaches that from expenditures for modernization of plant and equipment. That is the first avenue which must be explored in planning for the next decade. Branches of the industry may come and go; fibers may replace each other in bewildering succession; new processes may succeed old established methods—but so far as the individual manufacturer is concerned, he can keep abreast, and even ahead, of these developments through wise use of modernization money. Conversely, the manufacturer who doesn't keep his plant and equipment up hasn't a chance. There is only one sound way, as suggested in our 1930 inventory: "Definite apportionment of capital for depreciation and obsolescence; and the expenditure of the appropriation wisely to keep plant equipment abreast of the industry's development." . . . The biggest story in textiles will materialize when the average mill man regards his depreciation allowance, not as a bookkeeping entry for tax purposes, but as funds for a "must" program of modernization. That's a job for the next decade. . . . Meanwhile read the article on technological turmoil by Winn W. Chase, associate editor of TEXTILE WORLD (page 100).

RESEARCH: Closely allied with modernization is research. In this case, we are placing the emphasis on cooperative research, since small units such as those which mainly comprise the textile industry cannot get very far on individual programs. In our inventory 10 years ago, we recommended "development of organized fundamental technical research." During the decade which has intervened, two agencies have operated in that field. The Textile Foundation has expended a large sum of money, wisely, for vital projects in both technical and economic research. The U. S. Institute for Textile Research has cooperated with the Foundation, particularly with regard to publication of the latter's research findings, and has undertaken several researches of its own. However the Foundation is a semi-governmental agency, and plans to liquidate its capital over the next several years, while the Institute has never had any real money to go places with. It is apparent to this writer that the job of the industry during the next decade is to get a vigorous research movement underway, *adequately financed by the industry itself*, which will take the Foundation's place when the latter's liquidation is completed. For that reason, we have asked Fuller E. Callaway, Jr., who during the year had advanced a concrete program, to discuss this subject. (See page 98.) Mr. Callaway gives a definite and con-

clusive answer to this research problem, in the next to the last paragraph of his article. But people who still think of research as a job for pikers will find nothing of interest in Mr. Callaway's approach.

EMPLOYER-EMPLOYEE RELATIONS: In our inventory a decade ago we recommended, among other things: "(1) Employee representation in larger units; (2) placing of southern mill villages upon a self-sustaining basis—the differential to be added to the pay envelope." Today, "thanks" to the National Labor Relations Act, and the equally notorious board, the sort of employee representation we were talking about in 1930, and which promised so much to the cause of industrial peace, is illegal! But that too will pass—and we'll come back to sanity in industrial relations some day. . . . The second point, the project to place mill-villages on a self-sustaining basis, is very timely today, and well worth exploring. On pages 114 and 115 of this issue, we recapitulate TEXTILE WORLD's 15-year-old campaign toward that end. . . . On page 110, this writer summarizes other opportunities for investment in industrial relations.

MERCHANDISING: Second only to modernization in potential returns on money invested is merchandising. Stephen J. Kennedy, in an article in this issue (page 106) advocates a 10-year plan for such investment, and adds: "Investments in all of the aspects of merchandising are going to pay dividends during the next 10 years —quite possibly larger dividends than plant investments. In fact this may well prove the most profitable *long-run* field for new capital in an industry which has ceased to expand as is typical of so many branches of the textile industry."

ASSOCIATIONAL ACTIVITIES: Most textile manufacturers pay dues in one or more (usually more) associations. Too often, we are afraid, they regard this expenditure as they do contributions to the local Community Chest, or to the Red Cross. Just something to be "supported." From our standpoint, an association which is merely something to be "supported" should be crossed off the list of "charities." A trade association represents, potentially, one of the best *investments* a textile manufacturer can make. If it is a sour investment, it is due to one, or both, of two causes: Lack of real interest on the part of the industry, and/or ineffective direction on the part of the association executive. In most cases, it is the former. This industry has, on the whole, a bunch of potentially creative men and women among the paid executives of its trade organizations. We know all of them personally; we have spent a great deal of time with them and their problems. We can vouch for their sincerity and ability. And yet most of them are realizing only a very small part of their possibilities.

Such a man should have as his one concern the economic and technical progress of his branch of the industry, and, more important, should be empowered to advance that progress. How can this be done? (1) Every firm should be a member of its association or associations; it should be as ashamed to get a free ride, as an individual would be ashamed to ride on a train and beat the railroad out of a fare. (2) Member-firms of an association should demand that the executive have a long-term program setting up certain objectives on the most pressing problems of the field. (3) Paid executives should be encouraged to think liberally and fearlessly, and to face facts. We know too many cases where an executive is afraid to say what he thinks—because a reactionary group may be in the saddle, and his job thereby endangered. That's nothing in the world but hiring a man to do a job for you—and then preventing him from doing it. Not such smart business, if you should ask us. (4) The work of all the associations in the textile industry should be coordinated through a council similar to that just started in the cotton, rayon and silk divisions—as advocated by TEXTILE WORLD for years.

THERE ARE OTHER important opportunities for investment of money in order to make more money: investments in textile education, in proper geographical location of plants, in utilization of synthetic fibers, and in other directions. These are covered in articles in the following pages.

We shall use this theme "Making Money Make More Money" as our editorial platform during the coming year, just as last year we used the theme "Can a Textile Man Make Money?" We feel the more positive implication of this year's theme, as against last year's, is warranted.

And, since we can't let an Annual Issue go without sticking our neck out, we venture this prediction: The decade of the '40s will be more stable and more generally profitable for the textile industry *as a whole* than was the decade of the '20s or that of the '30s. But remember we said for the industry as a whole. That offers no guarantee for the individual manufacturer. He must find his own guarantee in his expenditures in modernization, merchandising, industrial relations. It will take wise investments to produce returns. But the returns will be worth while.

TEXTILE WORLD'S Editorial Inventory

In this traffic maze, guide posts are needed—guidé posts in the form of objectives. Such objectives must be changed or modified from time to time as certain ones reach the stage of accomplishment and others become obsolete through altered conditions. In the present status of the industry, TEXTILE WORLD recognizes the following as outstandingly important:

(a). Encouragement of cooperative economic research, through the institutes and associations.

(b). Development of organized fundamental technical research, together with more intensive applied research in individual mills, in order to develop:

(1). More knowledge of the physics and chemistry of raw materials, and their reactions with other materials used in processing.

(2). Elimination of unnecessary steps in manufacture.

(3). Further refinement of existing equipment.

(4). Sound "labor-extension" systems.

(c). Establishment of employer-employe relationships function on a par with manufacturing function and sales function—involving, among other things:

(1) Employe representation in larger units.

(2). Placing of southern mill village upon self-sustaining basis—differential to be added to the pay envelope.

(d). Production schedules based upon budgeting sales at profitable prices, not upon maximum machine-hour capacity; and also based upon a more intimate knowledge of the type trend of consumer demand.

(e). Definite apportionment of capital for depreciation and obsolescence; and the expenditure of the appropriation wisely to keep plant equipment abreast of the industry's development.

(f). Scientific and systematic cultivation of export markets, and cooperative organization for export selling under Webb-Pomerene Act.

(g). Determination of costs based upon sound and uniform accounting principles.

(h). Adequate tariff protection against goods made in countries with lower standards of living.

(i). Coordination of all these activities towards:

(1). More adequate wage rates for operatives.

(2). More adequate profit margins for stockholders. *(Note: The greatest single need is the transformation of the industry from a low-wage to a high-wage industry, but this cannot be achieved unless all the steps mentioned are taken by the industry as a whole.)*

From Jan. 4, 1930 Issue

THE NEXT DECADE IN TEXTILES

HOW TO MAKE MONEY MAKE MORE MONEY

THROUGH Research

BY FULLER E. CALLAWAY, JR.
President, Callaway Mills
La Grange, Ga.

THEY TELL US NOW that the ostrich does not bury his head in the sand. This is unfortunate in that it deprives us of a useful simile, though doubtless it is better for the ostrich. In any case, as Patrick Henry observed on a momentous occasion back in 1775, "It is natural for man to indulge in the illusions of hope. We are apt to shut our eyes against a painful truth—and listen to the song of the siren till she transforms us into beasts."

Most of us do not like to admit the necessity of change. It is more comfortable to remain as we are. And yet change is normal. It is inevitable. The choice is not ours to accept or reject it, but only to determine how we shall receive it. We are in the position of the man who was reminded that money does not bring happiness. "No," he answered, "but it does enable you to choose your own particular brand of misery." So the recognition that things positively will not continue to be as they are, that tomorrow will be different from today, that we cannot expect to stay forever in the same kind of business: this mental attitude will fortify us against the inevitable, and give us opportunity of attempting to choose the kind of world in which we shall live.

★ ★ ★

Mr. Callaway "stuck his neck out" last spring at the New Orleans convention of the American Cotton Manufacturers Association. He not only preached RESEARCH —something a practical mill-man is supposed, by tradition, not to do—but he advocated an industry fund, and talked in terms of millions for textile research, instead of the small change the industry has been accustomed to. Having started something, he was perfectly willing to finish it. And so, we have the pleasure of presenting this article on RESEARCH written by Mr. Callaway exclusively for TEXTILE WORLD'S special section: "The Next Decade in Textiles." It reflects both an unshakeable conviction on the part of the author, and a clear knowledge of the subject he's discussing, a rare combination, as any editor will tell you.—*Editor.*

About as good a definition of research as I have heard is that it is "finding out what you are going to do when you cannot keep on doing what you are doing now." To many industries and to many individual companies it has not occurred that they could not keep on doing the same thing. To others the realization came too late. Some have already passed out of the picture. Others are on the decline, and their doom is sealed. Still others are apparently vigorous and healthy, but they carry within them the germs of decay. Unless the factors of obsolescence are discovered in time and remedial steps taken, fatal diseases ensue.

Sailing vessels and harness-making were once prosperous industries. So was ice manufacture. So were street railway systems, anthracite coal mining, railroad transportation, natural fertilizers. To take the places of these we now have ocean liners, motor cars, busses and trucks, pipe lines, fuel oil, electric refrigeration, chemicals. Many industries which are not yet dead are ailing. Others are desperately sick. What is the matter with them? The demand for their product has declined. Human wants have changed. The form of life has been revised. Necessity has led to invention, and ingenuity has been loath to stop with immediate objectives. The result is a standard of living such as never existed before, a control of power that dazzles the imagination, and such mastery of raw materials as not only leads to greatly improved products but to synthetic production of the materials themselves.

INDUSTRIAL RESEARCH has been the prime factor in these changes and these achievements. Such industries as chemistry, automobiles, electrical equipment, glass, rubber, paper, and metallurgy owe their development to research. In Prime's "Analysis of Industrial Securities" the following table is given to show the average research expenditures *per plant* in ten of the most important industries:

Chemicals and allied prod.	$105,000
Automobile	100,000
Rubber and allied prod.	100,000
Metal-making	63,300
Food and allied prod.	47,000
Paper and pulp	38,400
Textiles	20,000
Rolling mills and steel	16,200
Leather and allied prod.	15,200
Lumber	13,600

The following estimates of individual company expenditures are taken from the same source: General Electric, $1,500,000 to $2,000,000 annually; General Motors, $1,500,000; Johns-Manville (synthetic building materials), $1,000,000; International Business Machines, $835,000 in 1930, $752,000 in 1931 and $710,000 in 1932.

In 1939 Paul G. Hoffman, president of the Studebaker Corporation, stated that the motor industry has spend "during the past two decades not less than $20,000,000 a year for engineering development and research." The oil refining industry spends more than $12,000,000 annually in laboratories.

DuPont, who first organized scientific research under commercial auspices with the establishment of a plant for this purpose just outside Wilmington, Del., in 1888, began as early as 1904 to diversify its product. This was intensified during the World War and thereafter; and in 1937 twelve new products developed since 1928 accounted for 40% of its sales. In 1936 only 42% of the net income of Union Carbide & Carbon came from products which were available as early as 1919.

Companies like these do not wait for the coming of disaster. The best defense is in attack. They know the rule of industrial change. They explore new markets. They develop new products and services. Outstanding examples of diversification, shifting and adaptation through research to changing demand, are found in the

steel, chemical and industrial equipment industries. The railroad industry has spent little for research. The air brake, the sleeping car, low-alloy metals, the Diesel-electric locomotive—most of the railroad improvements have been contributed by non-railroad men. Chemical, metallurgical and electrical research appropriations have gone into the production of these improvements and economies for a declining industry.

WHAT OF COTTON TEXTILES? The secretary of the United States Institute for Textile Research, Inc., describes the research work of the cotton-textile industry as follows: "As compared with the hundreds of thousands of dollars that are expended annually by the various British textile research associations, or with the millions that are spent annually by the big domestic chemical, electrical, automotive and communications companies, the total of domestic expenditures for textile research is ridiculously small." The New Uses Division of the Cotton-Textile Institute has recognized the adverse effects of the declining demand for cotton textiles, and has repeatedly appealed to the industry to build up a research fund with which to fight the textile competitive battle. What is termed "a broader, sounder financial base" will insure "the necessary continuity of concentrated, intensified effort in activities that . . . . have demonstrated the possibility of not only a tremendous expansion of existing uses, but of the development of promising new outlets for cotton."

The visit to the United States in 1938 of Frank Nasmith and J. R. S. Goodall, representatives of the Textile Institute of Manchester, England, brought forth an interesting comment by the visitors on the difference between their research work and ours. The United States, he said, was more practical-going on the theoretical question, "Would it sell?"—while the English go more into fundamental research, and occasionally find something that will sell. "Our objective," said Mr. Goodall, "is to pool ideas in the English-speaking world." Speaking before the Textile Institute of England in 1934, the Hon. A. P. Young, delivering the Mather Lecture on Industrial Leadership, said that "the total annual expenditure on research should be at least 1% of total annual turnover."

The primacy of cotton was unchallenged from the beginning of the nineteenth century till after the close of the World War. Cotton manufacture in the United States was profitable. Between 1885 and 1900 production increased at the rate of 4% annually; and from 1915 to 1925 about 2%. Since then there has been practically no net increase. Number of spindles increased from 26,939,415 in 1907 to 39,000,000 in 1925. By 1937 the number had dropped to 27,103,076. During the 30-year period the industry had gained and lost 12,000,000 spindles.

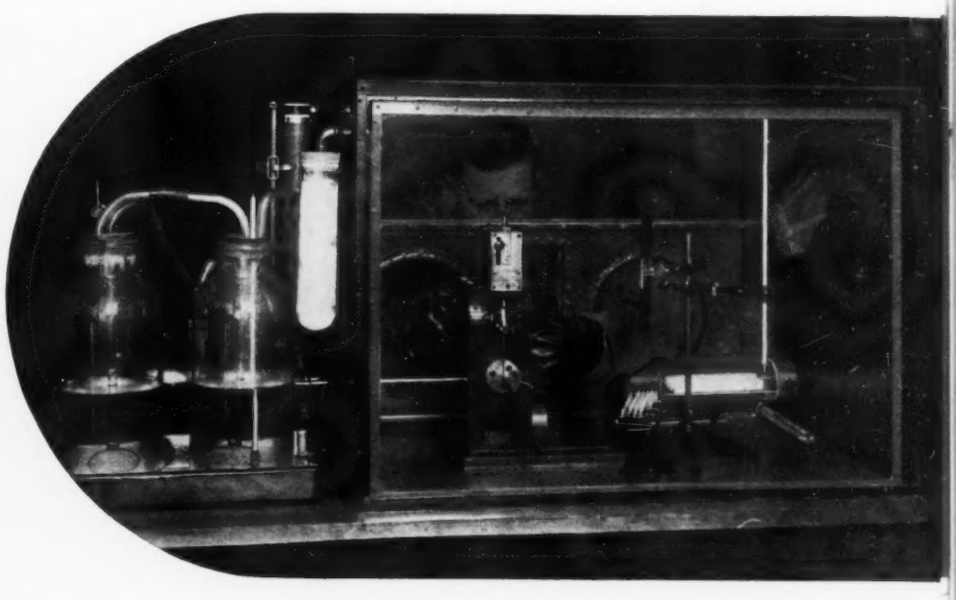
Meantime the production of rayon has grown by leaps and bounds. Begun in this country in 1912, by 1920 the production was 8,100,000 lb. Seven years later it had reached 75,500,000 lb. The increase since then has been steady, except for a decline in 1931–1932. In 1939 an all-time high of 384,200,000 lb. was reached. The record indicates that there may be ground for the prediction that "the time will come when all textile materials for wearing apparel, home furnishings and industrial use will have their origin in the laboratory test-tube."

Declining cotton consumption is due also to competition from paper. More than 1,000,000,000 lb. of paper is annually made into bags. The 500,000,000 yd. in bags still left the cotton textile industry is hanging in the balance. Every year 200,000,000 lb. of paper are converted into napkins. We find in the stores paper curtains, draperies, wash-cloths, sheets, pillow cases.

Comparatively few individual units in the cotton-textile industry could afford alone a comprehensive research program. However, by combining our resources and "pooling our ideas" after the fashion of our English cousins, we could present a united front in the attack upon our common problems; and, in my opinion, such a coalition would be irresistible. I do not anticipate that we shall be able to avoid change. It may be even that we shall finish with merely a textile industry instead of a cotton-textile industry. Nobody can prophesy as to that, any more than a seer could be found 50 years ago to warn the railroads of the oncoming motors. All we know is that the better machine or process or form of organization will prevail until the irreducible limit of cost and performance has been reached. We know that synthetic fibers are threatening to replace natural fibers. If we intend to retire, this may have no particular interest for us. If we expect to remain in business, it is a matter of profound concern; and we shall plan to adjust ourselves to whatever conditions come.

HOW SHALL WE DO THIS? I have already said that if all the textile mills of the country would pay into a common fund a definite percentage of their net invoices, we would have a sum that would compare favorably with any other industry. With this we could learn about the fibers with which we work, produce new materials, develop new processes, contrive new machines, and make new and hitherto unimagined yarn and fabric applications. We could coordinate the activities of research agencies now existing, stimulate the establishment of research consciousness and activity in units where it is now unknown, develop cooperation among the various agencies and units, and carry on a continuous program of expansion.

If this is done, I believe we shall continue to have a textile industry. If it is not done, there will doubtless continue to be a textile industry, but it may not continue to be ours.



"We could coordinate activities of research agencies now existing."

THE NEXT DECADE IN TEXTILES

HOW TO MAKE MONEY MAKE MORE MONEY

THROUGH Technological Advance

TEN YEARS of technological turmoil are ahead. New machines and methods will supersede certain of those widely employed today. Fabrics for many purposes will be produced without spinning, weaving, or knitting. Synthetic fibers of various types will replace natural fibers to a much greater extent than at present. Conventional methods of textile manufacture will be speeded up, simplified, made more nearly automatic. The changes in prospect afford the textile industry as a whole an opportunity to make more money in the next decade than has been possible since the boom period following the World War. But if the individual textile manufacturer is to profit, he must be prepared to spend money to make more money. To spend it wisely, he must have as clear a picture as possible of the textile industry as it will be at the beginning of the 1950's. To visualize this, requires a sound understanding of the directions in which technical progress has been and is being made.

Most spectacular of the advances are the several processes developed in recent years for manufacture of entirely new types of fabrics by methods differing radically from those employed in the past. One such process consists of impregnating cotton or other fibers—which have merely been carded, parallelized, and formed into a lap—with latex or another suitable adhesive or binder. Fabrics for bandages are made by applying the adhesive to the surface of the lap in narrow, crisscross stripes, each about $\frac{1}{16}$ in. apart. This gives a checked appearance to the fabric, provides sufficient strength, and still leaves a large percentage of the fibers in an uncoated condition. Fabrics of any desired thickness can be obtained by laminating the required number of laps. Other potential uses for materials produced by modifications of this method include window shades; tent cloths; upholstery; and backings for coated fabrics.

Another process makes use of a machine which combines certain of the principles of rubber, paper, and textile equipment; the fabric-like materials produced by this machine are suitable for book covers, luggage cloth, wall coverings, and similar applications. Floor coverings and other pile fabrics are made by a process which consists essentially of inserting wool or other unspun fibers vertically in a rubber-composition base. Felts are now being produced by combining cotton and Vinyon under heat and pressure.

Almost unbelievable to anyone steeped in conventional methods of textile manufacture are the simplicity of these processes, the high output per machine and per unit of time, and the possibilities they offer for reducing production costs. On the other hand, none of the materials developed to date duplicates woven or knitted fabrics as regards draping qualities. In fact, each of the new textile or semi-textile products has characteristics which restrict its application to a more or less limited field. Eventually, however, as these and other one-step processes are further perfected, they appear certain to replace the present methods for manufacturing many types of fabrics.

BY WINN W. CHASE
Associate Editor, Textile World

OF MORE IMMEDIATE CONCERN to most textile manufacturers—and considered in detail elsewhere in this section—is the increasingly important role which synthetic fibers will play. Already, machines designed specifically for handling rayon staple are beginning to appear; and, as other newer synthetic fibers get into large-scale commercial production, special machinery and processes will be introduced for use with them.

Directly related to the increasing use of rayon staple and other synthetics, although not entirely due to it, is one of the most significant technological changes which is taking place in the industry. This is the marked shift by many textile manufacturers in types of fabrics produced. The classical example of what can occur is, of course, the silk industry. In 1929 production of all-silk fabrics was over 400,000,000 sq. yd.; in 1937, hardly more than one-fourth of this. Meanwhile output of all-rayon fabrics had risen from 66,000,000 to nearly 950,000,000 sq. yd. Less than half of this was produced by the old-line silk manufacturers, the rest being woven in cotton mills or in plants established specifically for weaving rayon. Today a great majority of the rayon staple is being consumed by cotton mills. One use which these mills are making of rayon staple is in manufacture of men's trouserings and suitings. Such fabrics, of course, are competitive with products of the woolen and worsted mills.

In addition to the changes due to the increasing use of rayon staple and other synthetics, there is the prospect that knitted fabrics will replace certain types of woven goods to a much greater extent than they have in the past. Notable improvement has been made in the manufacture and finishing of knitted overcoatings; lace-like curtains are now being produced on knitting machines; warp-knit fabrics are bidding for popularity in dress goods and other purposes. Fabrics made on so-called knitting looms are finding numerous applications.

Not only do developments in one branch of the industry affect the other divisions, but the industry as a whole feels the effect of the inroads of non-textile products, such as rubber and paper, which are replacing textiles for various purposes.

GREATER INCENTIVE to reduce costs of textiles produced by conventional methods is one of the immediate and important results of introduction of radically new processes and products, such as those cited above. Consequently, much of the equipment which is scrapped in the next ten years will be designed to give higher and higher

speeds and larger packages. That is, there will be a greatly increased use of such equipment as high-speed spinning frames, spoolers, warpers, slashers; and large-package mules and throwing machines.

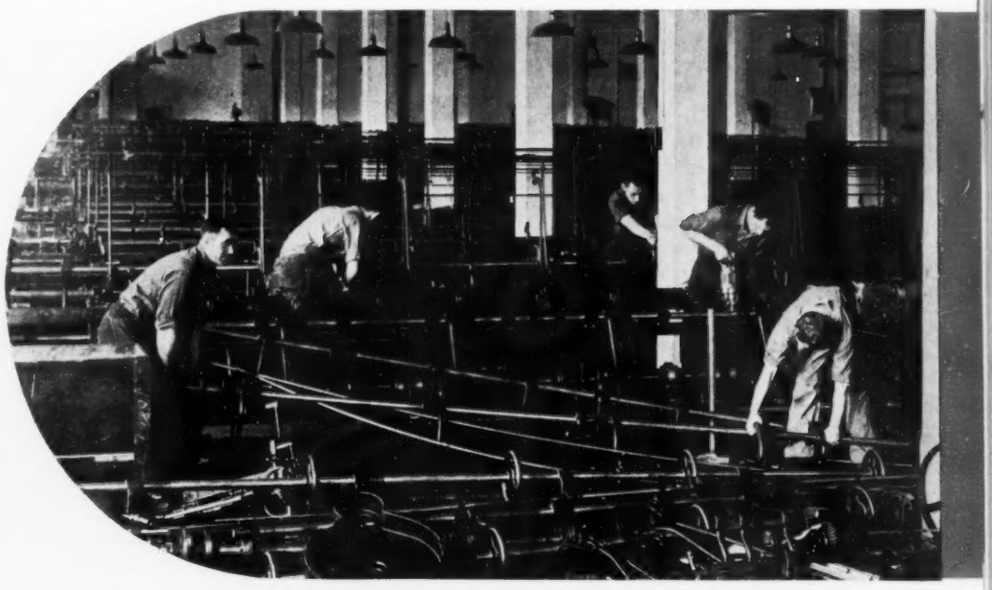
It appears, however, that about the ultimate in machine speeds has been reached with some of the most up-to-date types of machinery. Strenuous efforts are being made, therefore, to eliminate or combine operations. Hence, along with the more widespread adoption of such equipment as the long-draft roving and spinning systems of the general types now available, there undoubtedly will be a further simplification of processes.

It is not unreasonable to believe that by the end of the decade many cotton mills will be spinning directly from sliver produced with only one process of drawing. In worsted yarn manufacture, experiments indicate the probable elimination of all operations between gilling and spinning. In the throwing industry, the urge to eliminate or combine operations has already led to the introduction of a one-process machine which takes the yarn on skeins and delivers it either on cones for knitting or on filling bobbins for weaving. In the full-fashioned hosiery industry, steady improvement is being made in single-unit machines which permit knitting of legs and feet on one machine. In the dyeing and finishing divisions, continuous efforts are being made to substitute continuous for batch methods.

Introduction of automatic machines and other labor-saving devices is another important trend. Three recent developments along this line in productive equipment are automatic spoolers, high-speed automatic bobbin winders, and automatic welt devices which presage the early advent of completely automatic full-fashioned hosiery machines. Examples of labor-saving auxiliary equipment are the various types of conveyors for intra-plant transportation of goods in process.

DEMAND BY CONSUMERS for better and better fabrics means that during the next decade there will be a more widespread adoption of equipment which will permit improvement of quality of product, regardless of whether or not it also results in savings in cost. Such equipment includes various types of knitting machines for outerwear and underwear, a variety of finishing machines, air-conditioning equipment, process-control equipment, water-purification systems, and modern lighting systems. Likewise, there will be a much greater emphasis on fast-color dyeing and printing, pre-shrinking, moth-proofing, crease-resisting, waterproofing, and other finishing processes designed to improve the qualities of textile products and to impart specific characteristics. A related trend is that toward manufacture of industrial, household, and apparel fabrics to specifications.

THE "KISS OF DEATH" was abolished by introduction of the Northrup bobbin-changing loom. Further improvement in working conditions has resulted from installations of much of the other more recently developed equipment which is designed primarily to lower costs or improve quality. Thus, mechanical blenders, recirculating air systems for picker rooms, continuous strippers, traveling cleaners, and automatic kier pilers have all made the mills better places in which to work.



Several hundred million dollars' worth of old machinery will be scrapped in the next decade

In addition, every textile executive is striving constantly to insure the safety, health, and comfort of his employees by installation of protective devices on machinery, safeguards against fire, scientifically designed chairs and work tables, electric hoists to obviate lifting by hand of heavy loads, water fountains, sanitary toilet fixtures, etc.

Some machines and processes which differ considerably from those now commonly employed are so new that it is difficult to predict how widely they will be adopted during the next decade. Certain of these which appear to be potentially important are a circular knitting machine for producing full-fashioned hosiery, a new continuous process for cleaning woolens and worsteds with organic solvents, and a new bleaching process making use of sodium chlorite as an oxidizing agent.

In 1950 the textile industry will be much changed, but still will be recognizable to one acquainted with it now. In place of the equipment which has been junked, there will be several hundred million dollars' worth of modern, high-speed, automatic machinery. Yarn manufacturing and other processes will be simpler, with fewer operations. Mills will be lighter, safer, healthier, more comfortable. The accent will be on quality and the production of textiles to meet standard specifications and specific needs. New machines and processes as yet untried will be in evidence. Rayon and other synthetics will be used in much larger volume than at present. Most cotton mills and many knitting mills will be turning out more diversified lines of products. With few exceptions, the woolen and worsted mills of today will be making extensive use of synthetic fibers or will be out of business. Equipment for producing fabrics without spinning, weaving, or knitting will be found in numerous plants. The inroads of non-textiles will still be a problem. Some important new applications for textiles will have been developed.

To profit by these technological advances of the next decade, the individual textile manufacturer must spend money for the continuous modernization of machinery and methods. In doing this, he must strike a nice balance between the improvement of those conventional, established operations which will continue to be employed during the next ten years and the installation of the radically new processes which are becoming increasingly important.

THE NEXT DECADE IN TEXTILES

HOW TO MAKE MONEY MAKE MORE MONEY

THROUGH Synthetic Fibers

RAYON'S SHARE in total fiber consumption in this country jumped from 3% in 1929 to 8% in 1939. Ten years from now it may reach 25 to 30% of the total. To the annual output at the end of the decade of a billion pounds or more of continuous-filament rayon and rayon staple fiber, add an unpredictable amount of Nylon, Vinyon, Fiberglas and other synthetic fibers—some not known today. The time does not seem so distant when the textile industry may have synthetics as its entire source of raw material. But we are endeavoring now to peer only ten years into the future—to see what the rapidly expanding use of synthetic fibers in the next decade will bring in the way of new problems and new opportunities. The best approach, perhaps, is to survey briefly the present and probable future trends in production and utilization of the various types of synthetic fibers.

Introduction last year of Nylon and Vinyon aroused extraordinary interest in synthetic fibers, both among textile men and the general public. Unlike rayon, which is derived from a cellulose base, these true synthetic fibers are synthesized or at least are synthesizable from coal, minerals, water, and air. Nylon and Vinyon differ radically from each other in their chemical structure; modestly in their properties. Both are strong, elastic, resistant to water and many chemicals. Because of these and other characteristics, they have many potential applications in the textile industry.

THE FIRST BIG MARKET at which Nylon is being aimed is the full-fashioned hosiery field. Vinyon's initial bid is in the field of filter cloths and other industrial fabrics. But that is only the beginning. Already hosiery is being produced experimentally from Vinyon; parachute cloth from Nylon.

Due to the fact that silk's last stronghold is in the manufacture of full-fashioned hosiery, it has been predicted that the new synthetics will put the silkworm out of business. With reservations, this is true. The Nylon stockings first introduced were 45, 48, and 51 gage, selling at prices corresponding to those of fine silk hosiery; the intent is to establish Nylon as a quality product. It is a reasonable assumption that as larger quantities of synthetic fibers suitable for hosiery are made available, and as the prices are reduced, they will be employed in most of the styles for the middle and lower income groups. On the other hand, it is doubtful whether synthetic fibers will entirely replace silk in hosiery during the next ten years. An analogy is the continuing demand for silk lingerie by those who can afford such luxuries.

The initial price of Nylon at about that of silk has been surprisingly low, considering that somewhere many million of dollars in development cost must be absorbed. Nevertheless, recalling the progress of the rayon industry, it would not be surprising if in 1950 the price of Nylon or an equivalent fiber were a half, a third, or even a smaller fraction of that in 1940.

Again, those who have seen the changes in rayon since it was first introduced must assume that improvements will be made in these new synthetics. A further probability over the coming ten-year period is that other synthetic fibers not produced at present will be made available. In fact, a synthetic fiber made from vinylidene chloride is already being used in coarse yarns and cords.

Among the other present or potential applications for Nylon, Vinyon, or both, are draperies, filter cloth, bolting cloth, felts, acid- and alkali-resisting clothing, flame-proof awnings, shower-bath curtains, sewing thread, fish lines, seines, etc. Due to their low-moisture absorbency, the true synthetic fibers now available are not suitable for such uses as towels and do not appear to be particularly adaptable for underwear.

Glass fiber became commercially important in recent years with the lowering of costs to permit large-scale production. It is finding wide application as an insulating material for houses, refrigerator cars, etc. The present limited textile uses are mainly for drapery materials, filter cloths, and woven-glass fiber packing. Since glass textiles are fireproof, the possibilities for their use in public buildings and on shipboard cannot be overlooked. A modest but steady progress in utilization in household furnishings, such as tablecloths and upholstery fabrics, is a reasonable expectation.

Present miscellaneous applications of glass textiles include electrical insulation and lamp wicks. A fact to be taken into consideration is that glass fibers are relatively heavy, which is an advantage in some applications; a disadvantage in others. Although the more sensational papers played up the development of glass fabric as a forerunner of man being dressed in glass clothing, the possibilities of this fiber in the garment industries may be passed over as negligible.

TURNING TO RAYON, one finds that the development of special strong viscose yarns, the reduced cost of producing acetate yarn, and the development of new uses for rayon staple are leading to greatly expanded consumption of fibers derived from cellulose. Most important of these trends is the broadening market for various types of rayon staple. Here is a paradox. In foreign countries, where rayon staple is used of necessity in place of wool, at best it is regarded as an inadequate substitute. In this country, where there is no dearth of natural fibers, those qualified to make the shrewdest guesses are banking on it that by 1950 consumption of viscose and acetate rayon staple will at least equal and probably will exceed that of continuous-filament rayon. Domestic consumption of rayon staple rose from 53,000,000 lb. in 1938 to 100,000,000 lb. in 1939. By the end of the decade it is expected to be at least five times the latter figure.

The first major application for rayon staple was in dress goods. Other large uses which have been developed are for draperies, slacks, and sportswear. Now it is beginning to be employed, alone or blended with other fibers, in manu-

facture of suitings and overcoatings. Cotton mills are commencing to install spinning, weaving, and other equipment for making spun-rayon fabrics—some of them directly competitive with men's and women's wear fabrics produced by woolen and worsted mills. Somewhat the same reasoning which makes one believe that such fibers as Nylon and Vinyon will be widely employed in hosiery for the large middle- and lower-income groups leads to the opinion that staple fibers of various types will be used extensively in outer-apparel for those same groups.

Another large potential market for rayon staple is in the manufacture of carpets and rugs. Every large manufacturer of floor coverings is now experimenting with rayon staple, and at least one company is already offering rugs containing this fiber. Still other possibilities which are being explored for rayon staple are blankets, upholstery, and towelings.

For some purposes viscose staple is preferred; for others, acetate; for still others, combinations of the two. Undoubtedly when Nylon and Vinyon are made available commercially in staple form, applications for such fibers will be discovered.

ACETATE RAYON had to await low-cost acetic anhydride. One might think that this has arrived with 50% reduction in a decade, but substantial further reductions may reasonably be expected with larger volume. Fine-denier acetate rayon is obtainable. Stretching during spinning can be used to give added strength.

Some people have predicted that eventually acetate rayon will largely replace viscose rayon. What appears to be a more reasonable possibility is that ten years from now consumption of continuous-filament acetate rayon may just about equal that of continuous-filament viscose yarn.

Continuous-filament viscose rayon has shown a tremendous growth in the last two decades; but this growth trend cannot be expected to continue. Likewise, a radical price decline from the present levels appears rather unlikely, although it is conceivable that more efficient processes will be developed which will permit savings in production costs.

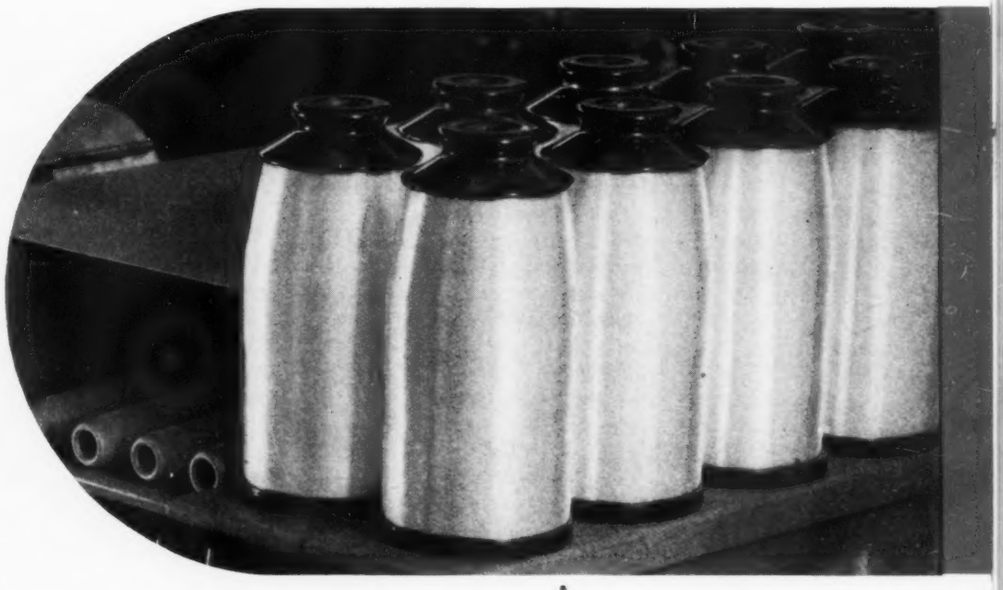
Recently, special high-strength viscose rayons have come to the fore. The cost of these is somewhat higher than that of ordinary viscose. Present major uses for high-strength viscose yarns include tire cords, belting, sail cloth, and other mechanical fabrics. They have been employed to a more limited extent in fabrics for shoe linings, football uniforms, shirts, sports clothes, dresses, and linings. Among potential uses which have been suggested are towelings, draperies, filter fabrics, and covering for rubber yarns. A recently developed special viscose rayon having both high strength and good elasticity is expected to find use in manufacture of hosiery and sheer underwear fabrics. It is probable that the anticipated moderate increase in consumption of continuous-filament viscose yarn will be due mainly to these special types.

Cuprammonium rayon has had moderate ups and downs, but has reached only a comparatively modest volume. There appears to be nothing on the horizon to indicate much broader markets than at present. Nitrocellulose rayon arrived at a very modest degree of success, and, practically speaking, has gone. No reason for its return is visualized. Other synthetic fibers derived from cellulose, such as ethyl cellulose, have not yet reached the commercial stage, and to predict their future would be hazardous.

For the last five years or more the textile industry has been hearing about fibers made from casein. It is a fair prediction, however, that the new decade will pass without these casein-type wool substitutes having developed a really large market in this country. Production of fibers from soy bean protein is in an experimental stage and can be expected to no more than catch up with the casein fiber. Fibers of Zein derived from cornmeal are probably even further in the distance.

One of the most recent developments in synthetic fibers is the production of chlorinated rubber yarns. Experiments indicate that this type of product will find use in a variety of woven and knitted fabrics for specialized purposes.

FROM THIS BRIEF SURVEY it is apparent that in the decade ahead there will be a tremendous increase in consumption of synthetic fibers. This will be accounted for largely by rayon staple; special types of continuous-filament viscose yarn; acetate rayon; and true synthetics, such as Nylon and Vinyon. These synthetic fibers will be employed in an ever-widening variety of fabrics and will replace natural fibers, particularly silk and wool, for certain purposes. But textile manufacturers who are awake to the opportunities offered by these developments have nothing to bemoan. They know that use of certain of the synthetic fibers will permit production of better products, or products which can be sold at a lower price, or both. The manufacturers who are making the most of this opportunity are those who have already started to spend time and money on acquainting themselves with the properties of the various synthetics, on new product development, on market research, and on installation of new equipment and processes necessary for efficient handling of these fibers in the mill. Applied research in the individual mill is essential; investment in such research will pay dividends, and will forestall loss of present markets.



Ten years from now synthetics may reach 25 to 30% of fiber total

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The editors wish to express their thanks to the various authorities who supplied data on which the predictions and conclusions in this article are based, and particularly to Dr. Foster Dee Snell, of Foster D. Snell, Inc., who contributed considerable of the material used.

THE NEXT DECADE IN TEXTILES

HOW TO MAKE MONEY MAKE MORE MONEY

THROUGH Plant Location

BY ALBERT L. SCOTT

President, Lockwood Greene Engineers, Inc.

A GOOD MANY YEARS AGO I met accidentally in Spartanburg a New England cotton manufacturer accompanied by his superintendent. For both, it was their first trip South. They were trying to determine whether they should move part or all of their manufacturing operations to a southern location. Their New England plant was at the time successful, they were well entrenched financially and in the market. Because of those facts their eyes were blinded to the advantages of the South for them. Later, I inquired what their decision was. They had decided to remain in New England. A decade or so later, the manufacturer avoided bankruptcy only by the favor of his creditors. He had failed, at a critical moment, to discern those bad factors inherent in his New England location, as well as the good ones in the South. Such cases are all too common as every student of cotton manufacturing knows.

Hindsight is better than foresight. It is easy to see now how handicapped New England was as a cotton manufacturing section as long ago as the period before the Great War. The question Mr. Woolf has put to me, however, is: How can a manufacturer determine today what effect geographical location, present or future, may have on his success during the next decade? This is not so easy to discover. Our eyes may be as blind now as many New England manufacturers' were, let us say, in 1910. It may seem just as incredible to a South Carolina manufacturer today that he may be handicapped during the next decade by his geographical location as it seemed in 1920 to the successful New England manufacturer, to whom I have referred, that he could be ruined by remaining snug and comfortable at home. An objective review of any one's own situation is to most men impossible. A veil hides the future, and yet to the discerning, there may be factors which are beginning to appear in any plant which, if properly evaluated, may lead to a wise decision as to the future.

Experience has shown that there are some general laws which can be applied to aid in determining whether a present geographical location is favorable, whether it is growing more so in comparison with competitors, or less so; also whether it will be worth while to move to a new location, or remain at the old.

Many of these factors are capable of being evaluated in dollars and cents. Wise manufacturers are more and more doing so.

One of the important elements in judging the value of a given geographical location is that of freight rates. While there is much discussion at present over discriminating freight charges, it is fair to assume, I believe, that in the long run freight rates will adjust themselves to distance. A finishing plant using large quantities of print cloths will find a distinct advantage in a location where the raw material can be supplied by short-haul rail service or by truck. For a large plant such a location might bring a saving of many thousands of dollars per year. Also, where nearness to large distributing points is important and overnight service from the mill to the market is desirable, a plant should be located with an eye to New York, St. Louis, Chicago, or the particular market for that mill's goods. Here a study of possible change of markets might be important. Since more and more mills are receiving and delivering shipments by truck and the tendency seems likely to grow in the next decade, careful attention should be given also to trucking possibilities. Fortunately, freight and trucking rates can be evaluated in dollars or in costs per yard or per pound.

Another factor of importance to mills using large quantities of steam or power is the cost of coal or electric energy. The cost of coal is affected largely by freight rates, but power costs are for the most part predicated on the prevailing power rates in a given area. There have been in the past many discrepancies and differences in power rates for a given type of service. It is my belief, however, that due partly to Government pressure, and possibly more to increased intelligence and experience on the part of the power companies, wide discrepancies in power rates will tend to disappear. The important question for the manufacturer will be: Is the service of the power company adequate and dependable, and are coal or oil supplies available at a reasonable price if necessary? The tendency of the times is toward higher steam pressures, higher speeds, requiring more coal and more energy, but almost invariably accompanied by lower costs per unit of product. The value of this factor is now largely calculable in dollars and cents, and, with increased engineering knowledge and skill, will continue to be more and more accurately computed during the next decade.

MANY MANUFACTURERS would consider labor supply as one of the important elements entering into any appraisal of a given situation. A generation ago, quantity of labor was a first consideration; hence in many areas labor was imported from other countries, even though the value for textile manufacturing was poor. A prominent New England finisher told me not long ago that he engaged now only employees who were American citizens, or citizens from those ethnic strains which experience had shown him made good textile workers. It seems to me likely that such policies will become more common in the next decade, and a location where such employees may be secured will be a prime consideration for a mill.

The tendency of the times—and it looks as if it would continue during the next decade—is for the machines to do more and more of the work. But the smaller number of employees which may be required will need to be men and women of better health, more intelligence, more loyalty, more understanding than those needed in the past.

It looks as if the experiments already being tried by some manufacturers, to provide their help an opportunity to purchase enough land nearby so that the employee may have his own garden, chickens, hog or cow, might become much more numerous during the next decade. If they do, a plant location may be enhanced in value if there is not only cheap land available within an easy motoring distance, but also if there are people in the locality with stamina and industry enough to take advantage of such favorable conditions for living. The shorter work-week, which seems permanently here, provides the mill hand with plenty of time to work his home plot if he has the will to do so.

Labor quality is also determined very largely by climatic conditions. Areas where the climate is hot and humid or where climatic conditions are severe in other ways, are not as favorable for the growth of good mill workers as are temperate climates avoiding great extremes of heat and cold. The art of air conditioning will doubtless develop in the next decade to such an extent that about any conditions desired can be produced inside the mill. But it is the excellence of outside climatic conditions which develops the bodily strength of the employee. Such conditions will continue to be important as in the past.

FINALLY, and perhaps most important of all the conditions which may influence the location of mills in the next decade, is what I am going to call "manufacturing climate." I have never seen that expression used before. By it I mean such elements as taxation, attitude of the State or community; type of State, county or city officials; make-up of the courts and legislative assemblies; health and food regulations; quality of hospitals, schools and social institutions generally. Some of these elements can be evaluated in dollars such as taxes. Others may be considered as imponderables, extremely important but hard to evaluate in dollars. Among these may be listed community attitudes; quality of the courts or legislature; and the presence or absence of social mindedness.

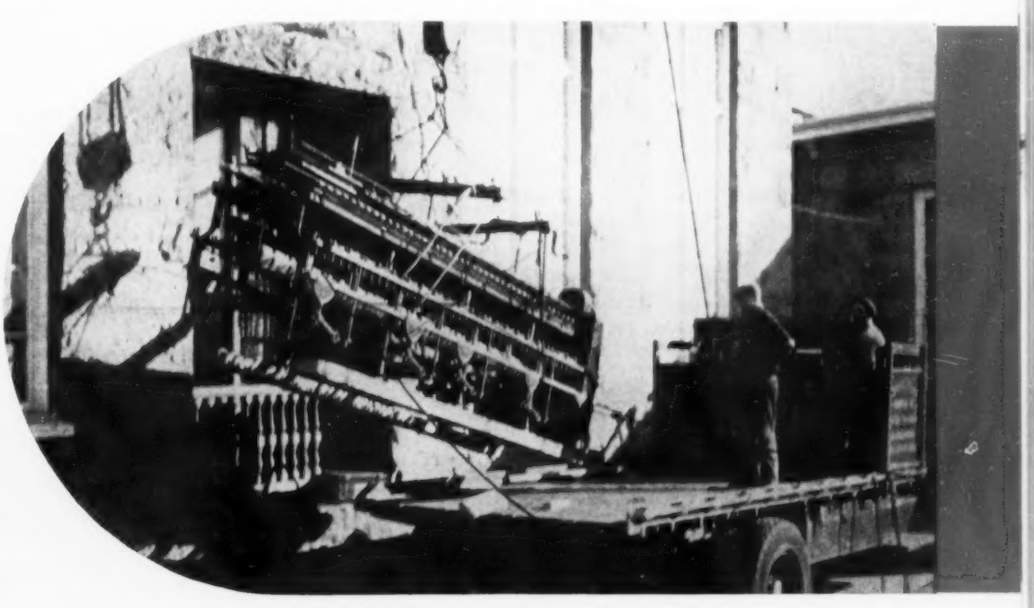
Taxation is a vexing question for all manufacturers. Naturally all want their taxes low. Yet mills must have good roads and schools and hospitals and certain indispensable public services like State police or highly trained staffs for Boards of Health. These services cost money and in States where they are adequately provided taxation may be higher than in States where such services are largely non-existent or poorly provided. For the type of employee which we are envisaging as being more and more desired during the next decade, these services are essential. The manufacturer should, therefore, not ask whether taxation is low or high, but rather whether the money raised by taxation is wisely spent.

The formula for a successful textile manufacturing operation is simple in the extreme. It is to produce an article that the trade wants, of high quality, and at a cost which shows an adequate profit. The working out of this formula is as difficult as its statement is simple. Among the factors which make profits hard to produce are poorly located plants, where raw materials may be too costly, or transportation charges too high, or markets too remote; or labor costs may be high because of sullenness or lack of cooperation on the part of the workers, or high power costs, or high taxation, or an antiquated plant. Sometimes these difficulties can be removed in whole or in part by drastic changes at the plant. Often they can be removed only by changing the location entirely or at least by making enlargements or extensions in a new situation. A large development of plant at a given location almost always starts in operation the law of diminishing returns. The advantages which should accrue in a large plant from savings in administration and overhead are too frequently lost in a lack of efficiency, and in waste and sabotage.

IT SEEMS TO ME that we may see a very considerable dislocation in the textile industry during the next ten years. Many plants are now too large or are experiencing difficulties of one sort or another in running at a profit at their present location. To such, a change to a new location gives not only the advantage of a new plant but also an opportunity to secure lowered transportation charges, better labor relations, the use of new and improved machinery; with consequent lower costs, better quality and larger profits.

No manufacturer, no matter how advantageously located, who has been at a given location for a considerable length of time should fail to study the possibility of greatly improving his operations by a change of location.

We are living in an unstable world and our riches have wings. The wise manufacturer should recognize these facts and never be lulled into a false sense of security by apparently good conditions in his plant. If somebody somewhere else is doing what he is doing better and cheaper, or is more responsive to changes in style or demand, or has a better general location, it may be only a question of time when another corporation will be added to the long list of those which have failed because their officers could not or would not admit to themselves the facts regarding their situation and then act in accordance with those facts.



Textile machinery on its way to a better "manufacturing climate"

On the other hand, there are many textile corporations flourishing today whose officers acted as Commodore Perry did at the battle of Lake Erie. When one boat was shot from under him, he transferred his flag to another and won the fight.

The need for this kind of keenness of perception, it seems to me, will be greater than ever before in the decade which lies immediately ahead.

THE NEXT DECADE IN TEXTILES

HOW TO MAKE MONEY MAKE MORE MONEY

THROUGH Merchandising

BY STEPHEN J. KENNEDY
Director of Market Research, Pacific Mills

MILLIONS FOR MACHINERY but not a cent of investment capital for the intangible assets of merchandising . . . While perhaps not put in quite those words, that is, in effect, the criticism leveled by outsiders at the investment policy of the textile industry. It overlooks certain important exceptions known to all of us, and also ignores the difficulties of obtaining adequate investment capital for an industry beset with a will to self-destruction through two and three-shift operation, and weighed down by raw materials whose prices fluctuate sharply with political as well as climatic influences.

However, candid self-appraisal must make us admit that there is much truth in such criticism. Textile manufacturers really do not know much as an industry about investing money in people and in the influencing of the attitudes and desires of people. Assets to most of us mean only those we can lay our hands on, the kind we can show in balance sheets.

Merchandising, on the other hand, is a field in which a company's assets are almost wholly intangible. For merchandising in the ultimate analysis is the relating of merchandise to people—the relating of what your machine can make to the person who is going to use it. Except for the company's working capital, which properly speaking belongs to the mill itself, what is there that is tangible in the whole of merchandising? Only some people who form a merchandising unit; their collective abilities in interpreting, controlling and directing the desires of consumers; and the attitudes of other people toward your company and its representatives.

Yet, we will all admit that in this field there may be very real assets, even though they are not measurable in terms which will permit our showing them as assets in balance sheets. And we all know that it is possible for a firm either to be greatly blessed with them or to have to struggle along on a day-to-day basis so far as its balance of these intangible assets is concerned.

The idea of investing money in such intangibles in order to make more money is not new or foreign to business, however little it may have been recognized in our industry. Other industries, notably the oft-cited automobile industry, the electrical appliance industry, the tobacco, shoe, drug and toilet article, and many other consumers' goods industries, have found that it is possible to invest a million dollars in the purely merchandising aspects of their business—training and developing merchandising personnel, and building consumer good will—and to get a bigger return on it than if they had put that same amount into machinery alone. Rather have they found that unless they do invest in the merchandising aspects of their business, they cannot make their machinery investment yield as large a net return.

To be specific, capital can be invested to yield long term profits in the merchandising side of the business in at least three ways: (1) to build customer and consumer good-will through advertising and promotion; (2) to build a merchandising organization through investing time and money in the training of personnel and getting them to work together effectively as a team; (3) to develop a company organization structure that will enable the firm to promote and brand its product direct to consumers.

IT MUST BE RECOGNIZED in any consideration of this subject that not every mill in the textile industry would be justified in starting upon an advertising program. The question of whether or not investment in advertising and brand promotion could be made to yield an adequate return cannot be answered until a decision has been made with respect to the larger question of fundamental mill-operating policy. In the two extremes, a mill might decide on a policy either of producing the most staple kind of goods at lowest possible cost on a minimum number of constructions and a mass production basis; or of producing specialties or novelty goods on which minimum cost is of less concern than merchandising the product effectively, and underselling competition less necessary than putting something more into the product in the way of style or brand name or intrinsic quality and selling it at a higher price than most competitors. Both types of goods, staple and specialty, are needed for our markets. And over short-term periods one may say that there is room for both types of mills in the textile industry.

What the critics of our industry's merchandising have really been trying to say is that we have been slow in realizing that a large part of our staple goods output could be turned over to specialty goods on which larger gross and net margins could be obtained, and that over longer periods the shift is moving in that direction faster than the average mill realizes.

We will all appreciate the fundamental truth in that point if we will look back 10 or 15 years and contrast the style or specialty value in many of our industry's products compared with what we were making then: the tremendous advance in use of design in fabric and in printing; the broader concept of color in the home and its revolutionary effect upon many of the household textile markets; the new types of apparel, particularly functionalized garments for sportswear which have called forth new functionalized types of fabrics and a whole new range of improved finishes based on resins and other chemical processes.

Just the employment of these new ideas, even if you are among the first to adopt them, does not go far enough. The important thing from the standpoint of effective merchandising is that they be recognized as opportunities for stepping out from the mass of producers and so merchandising your

product that not only do you use these new ideas but that your customers and even consumers recognize it is your firm that is doing it. To do that requires advertising, or to put it in the terms we have chosen to use here, it requires investment in influencing people's ideas about your firm.

Over the last 10 or 15 years there has been much more progress in this direction than people who read only financial statements of mills realize. Much of it has been slow. Its cumulative results, however, should show up during the next decade in a very sizeable shift in the relative proportions of staple goods and specialties. Judging from the progress of the last decade, by 1950 there is going to be a much smaller market for mills that hold to staples alone, and since shrinking markets tend to be less profitable than expanding markets, goods capable of promotion will probably have a sizeable advantage from the standpoint of profit.

Of even more importance is the need for recognizing the fact that the consumer is assuming a new role in industry, a fact which is unquestionably going to be brought home to the consumers' goods industries forcibly during the next decade. It was less than 10 years ago that consumers for the first time were recognized by Government as having interests in industrial policies, and were invited to participate along with labor and management in consideration of industry's problems.

That was revolutionary enough, but the consumer movement is going to go much further than that. The malpractices of many industries, of which textile manufacturing and distribution have been among the worst offenders in giving consumers unsatisfactory products and inadequate information, have stirred up a mass movement among women consumers to reform from the outside certain of the textile industry's policies.

There is too much tendency in our industry to discount what the women's organizations can do when they are unleashed on a project with right on their side. The next 10 years are going to see a lot of things done to our industry in shaping its policies toward giving consumers information about our products and in raising standards of performance. And it will not all be pleasant—some of the measures prompted by previous disregard of consumers are going to hurt.

What a brilliant opportunity this situation is going to create for those organizations that see in it an opportunity to build consumer good will for their products! To build consumer good-will requires consumer advertising and brand promotion, and that in turn requires that the mill control its own merchandising, and be able effectively to integrate its production with the merchandising of its product down almost to the point where it reaches the consumer.

THE PRECISE FORM of organization which a mill would need to accomplish this would vary considerably with the product. Some of the different ways this could be done have been outlined in detail in the study of "Vertical Integration in the Textile Industries," a research project conducted by the Industrial Research Department of the Wharton School on a grant from the Textile Foundation.

In general it may be said that for a textile mill alive to the possibilities of investment in merchandising, there are several ways it would go about a long-range plan, such as a 10-year program would make possible.

It would first need to develop a merchandising organization of its own. It might still choose to sell through a commission house for the time being, but within the mill organization itself there should be someone capable of merchandising the product of the mill and able to understand the merchandise needs of the trades using its product—either what it now makes or what it could make.

With 10 years in which to accomplish it, such a man could be trained. He might be the present head of the mill, but preferably he should be the man being trained to succeed him. Mills which invest money in training such a man and which have him in their organization 10 years from now will find themselves in an exceptionally fortunate position. If we stop to think that within the last 10 years many of the large textile distributors have added to their organizations men who thoroughly understand and can figure gray mill and finishing costs, who know how to operate to advantage in the cloth markets, and how to hedge both seasonally and cyclically in the raw material markets—in short, men who know about all that mill managers themselves know about their business, then we realize how important it is in balancing the situation that mills have men in their organizations who understand the intricacies of merchandising a flow of goods from mill to ultimate user.

Over the next 10 years the greatest progress toward building organizations which will be able to undertake effective brand promotion will probably come through the growth of larger units through consolidations. We do not mean by this the voluntary union of two or more competing mills. The financial history of our industry during the last generation shows that such mergers seldom occur. What does happen is that large successful mills or mill owners buy financially weak or failing mills at bargain prices and thus effect a form of consolidation.

Textile selling houses in New York's downtown district

Growth through consolidation in our industry during the last 25 years has paralleled in a sense the growth of chain stores in retail merchandising. It is a case of aggrandisement of the strong, whether intentional or not, at the expense of the weak in this ruthless struggle for survival in which our industry finds itself. Consequently when one says that "progress" will occur

(Continued on page 109)

THE NEXT DECADE IN TEXTILES

HOW TO MAKE MONEY MAKE MORE MONEY

THROUGH Education

ANY PROPHECY as to the future of textile education and the importance of especially trained men for the textile industry must necessarily presuppose that the prophet envisions growth and change in the textile industry itself. The vitality and strength of the educational program being carried on in the several educational institutions are based fundamentally on the fact that all these educational programs have been developed with the cooperation of the industry.

As has been pointed out in earlier articles in this publication, the textile industry has been unique in that it early saw the opportunity and the need for trained men. Units of education were established in Massachusetts, Rhode Island, New York, Pennsylvania, North and South Carolina, Georgia, Alabama and Texas, largely because of the insistence of the textile manufacturers in those localities where the future of the industry rested on a trained personnel. Certainly such progress as has been made by the deans of the several textile schools during the last six years, in cooperation with the Textile Foundation, is founded in the belief that education is as important an element in advancing the textile arts and sciences as any other factor of that advance.

Above the head of the driver of every automobile is a rear-view mirror. It is essential to safe driving to look in the mirror, especially before making any left turns! A prophet similarly needs a rear-view mirror if he is to drive ahead safely. In looking ahead for the textile industry and for textile education, the background of the past helps to indicate the probable general direction of the future. It seems to your prophet that there are three general streams of practice along which both textile education and the industry are borne.

★ ★ ★

One of the great achievements of the last decade in textiles was the advance made in textile education through a concerted program. The three main contributors to this progress were: The Textile Foundation, through its support of the program; the deans of the textile schools, through their wholehearted support; and Frederick M. Feiker, who directed the program and continues as consultant. Consequently Mr. Feiker is the man best qualified to look ahead and tell us what the next decade will bring to textile education. In this article he emphasizes three main trends, each thrilling in its concept.—*Editor.*

ONE OF THESE STREAMS starts in the springs of the past as old as time, namely, the desire for the human animal, especially the female of the species, to look as well as possible. Up through the years, has come this element of art, style, color and design in the textile industry which individualizes it as an industry in contrast with many others. This pattern of style, made up of design, color and individual preference, may be expected not only to continue to be one of the major objectives of the textile industry but to lend itself within reason to an expanded educational program if the textile industry is to keep pace with the future demands of the people we call consumers, for the new products of the textile art in a multitude of directions.

By FREDERICK M. FEIKER
Textile Foundation's Consultant on Textile Education

I should expect to see this need reflected in education by the development of men and women whose trained background enables them to catch the elusive trends of style and match them with production and sales possibilities. This is the art of selling in the textile industry. It is that which makes a selling organization something more than a department for turning over so many yards of material. I would expect to see education match the trend for bringing the consumer and the producer of textile materials nearer together in the chain of distribution by following out the teaching of the present materials in the fields of economics marketing and costs, as has already been so well started in most of the textile schools.

I would expect to see this stream practice further modified by the consideration of the creative side of design as well as the mechanical reconstruction of design upon which most emphasis is now given in textile training. I would expect to see the teaching of design, style and color expanded and more men and women come to our textile schools with the field of design and style as a future outlet for their abilities, as well as the fields of manufacture and sales.

THE SECOND STREAM of business practice, which started in the past, is flowing at the moment faster than ever involving the technology of industry and the adaptation of machinery to carrying out by mass production the values of an old handicraft art. One of the classic illustrations of the change from handicraft to machine production, used in most of the books on economics, is Arkwright's invention of the spinning frame. The invention and development of ingenious machinery for increasing the output per hour for spindles and for looms, of improving the quality of fabrics, of devising ways and means to spin and weave mixed fibers of all sorts, as well as the newer man-made fibers, have grown enormously in the last 15 years and I would expect to see education continue to relate itself to providing trained men to meet these increasing interests and challenging problems in technology.

The coming of the chemist and the chemical engineer into the textile business, the coming of the user of industrial fabrics into the production of the fabrics themselves, as well as developments within the textile industry—all have focused attention on changed technology, new machinery, new concepts of manufacturing fabrics. Indeed, in a number of directions this process has been carried so far as to eliminate spinning and weaving completely in the

manufacture of textile fabrics. It does not seem inconceivable that we may some day feed cotton into one end of the machine and out from the other end will flow fabrics.

Who would have thought that an ordinary electric light bulb could be made by pouring molten glass into one end of a machine and having bulbs drop out of the other! Certainly the traditional fabricating processes of the textile industry are subject to the same tests of American ingenuity as are those in other fields. I would expect to see education seeking to take the view that what is, is not necessarily best or final, and that in this field of changing technology there is a need for a type of training which changes in practice will support.

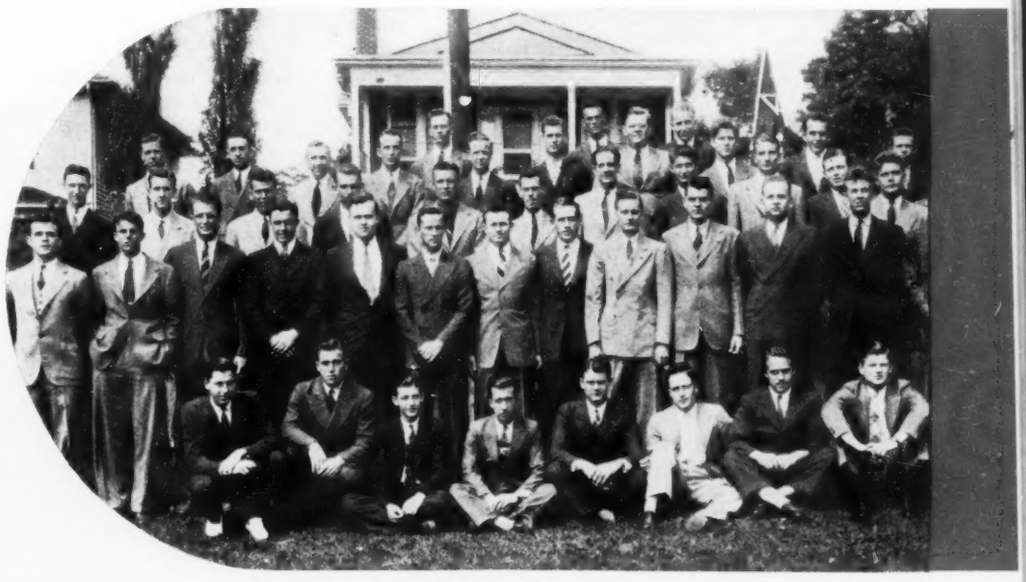
THE THIRD STREAM of textile business practice is concerned with the organization and form of industry itself, which is undergoing many changes. Such generalizations as your prophet is making in this article are always subject to exceptions. Yet, in the long view, as seen in the rear-mirror perspective, as well as in the view ahead on the road of industry, there are trends in the organization and reorganization of the textile industry, which seem to be significant.

The trend to draw the consumer closer to the original producer by one device or another of integrated organization, the trend toward the establishment by the consumer group of standards of utility and quality, which reflect back into the industry in terms of greater study of simplification, standardization and trade-marking—these trends are not found in the textile industry alone, but the same general facts are seen reflected in many other industries.

A successful textile manufacturer of the future, as in the past, will still have a problem of matching quality-values, utility-values, style-values, with price, in order to capture a market. The trend is more and more to attempt to measure the intangibles and make them tangible and thus controllable. As a consequence, we may expect to see the need of trained men for the study of sales and trade questions, the development of research staffs, not only in the field of manufacturing but in the fields of selling and marketing.

And finally, education and industry, as has been pointed out before, are bound together as they journey along these three streams of practice by one common factor, namely, the need for the inquiring mind. The scientist calls this "research"; the business man calls it "I'm from Missouri." The scientist sees the effect of his inquiry in terms of creating some new product or method, or some improvement in present practice. The business man sees it in terms of more intelligent sales quotas, based on better knowledge of market conditions. The educator has the problem of training young men and women as to the character of these problems and providing them not only with the tools of the inquiring mind, but with some orderly mental discipline so they can use and control their abilities.

We may expect to see in education not only the development of chemical and physical laboratories, but the business laboratory. Certainly the textile industry, with its many ramifications, its remarkable traditions, its intimacy with the vital needs of the average man and woman, has the potential opportunity to make the most of the challenge of times, which is not, as some would have us believe, to make life easier, but to make men stronger.



A typical graduating class whose members received their textile degrees last spring

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Merchandising

(Continued from page 107)

through consolidations, he infers that more large units are to be preferred to the present large number of small mills, even if it must be attained by bankrupting the owners of small mills and enabling stronger mills to grow still stronger.

A fewer number of large mills would help to create more market stability, less weak selling, and more easily coordinated market action. That some improvement along these lines could occur is not to be denied. But it should not be forgotten that in shrinking or non-expanding markets there will always be marginal sellers even when those that are marginal at present have been "eliminated" by transfer into stronger hands.

What is probably in the minds of most people who advocate mergers is that the use of investment capital to bring about consolidations will make possible effective investment in the intangibles of merchandising. Larger organizations, when they direct their attention to effecting vertical integration and control of their product are in a much sounder position to invest in consumer advertising and brand promotion than smaller ones. They have more dollar sales to work with, and after all consumer advertising must be done on a relatively large scale to be effective. Most important, larger organizations have an opportunity to diversify their product and to develop a family brand that will reach a wider range of consumers than if there were only one product, and hence make the effects of consumer advertising cumulative.

Basically then, capital investments in merchandising may be either outright outlays in merchandising personnel or in consumer and brand promotion, or they may represent part of the capital investment employed in expanding the company to put it into a position to do a consumer advertising job either through vertical organization or through broadening the range of its products. Investments in all of these aspects of merchandising are going to pay dividends during the next ten years—quite possibly larger dividends than plant investments. In fact this may well prove the most profitable *long-run* field for new capital.

THE NEXT DECADE IN TEXTILES

HOW TO MAKE MONEY MAKE MORE MONEY

THROUGH Industrial Relations

NO INTELLIGENT TEXTILE MANUFACTURER has to be told that there is a good opportunity for a paying investment in employer-employee relationships. So much of his time and that of his operating executives is spent in that zone that he *knows* there's a lot to be done there. But what he wants to be told most is just how to invest money in industrial relations most effectively.

And that's the little job this writer has picked out for himself in this article. He is going to confine it to a suggestive outline, only.

In the first place, a textile manufacturer can't get to first base unless he has a group of intelligent, capable, honest and tactful key-men (superintendent, assistant superintendent, technicians, overseers, second hands, section hands, etc.,) working together as what has come to be tritely but accurately known as a team. Most mill-men think they have such an outfit. Most mill-men are mistaken. They probably have a bunch of pretty good individuals—but not a group acting as a channel through which the management's ideals may be passed down to the employees.

To get this, a company should (1) give the operating executives proper pay and responsibility (see our January editorial); (2) develop a sound and continuing educational program, in the nature of a Foremen's Council; (3) encourage the key-men to attend their associational meetings, to prepare papers to be presented at those meetings, and to write articles for the textile press.

Second, the management should develop its own relations with the wage-earners themselves through (a) personnel selection; (b) personnel training; (c) development of wage incentives; (d) formulation of a program for building up the individual's pride in his job.

Third, the company should over-haul its community-activity program; place its mill-villages and other plans on a self-sustaining basis; eliminate paternalism in so far as possible; but leave no stone unturned to help the employees achieve every type of activity for which they have evidenced a real desire, and to the support of which they are prepared to contribute.

THE ABOVE has to do with the individual manufacturer's program. There is an industry-wide job—but it hasn't been done. We have urged repeatedly in TEXTILE WORLD that each textile association set up an Industrial Relations Department and devote its best thought to the formulation of sound policies for recommendations to its members. By and large, little has been accomplished of this sort. An occasional address on employer-employee relations at an annual convention; a defensive appearance at a labor-committee hearing in Washington—this is about the sum total.

There is ample reward in prospect. Just as one example: If the matter of placing the southern mill-village on a self-sustaining basis had been taken up in a concerted way when we first proposed it 15 years ago, a lot of subsequent grief would have been avoided.

During the next decade, there is going to be much new labor legislation passed by the Federal and State Governments. Industry can either fight it tooth-and-nail, and get nowhere; or cooperate in its development, and get more nearly the type best suited to our present national economy. That's a job for the individual associations and for the council of associations.

So, in conclusion, if any employer has some spare cash hanging around, we suggest he invest it in his own personnel program, and in forcing an industrial-relations program upon his trade association.—*Editor.*

You Are Cordially Invited:

IN THIS SECTION, we and our special contributors have stuck our several necks out. We have gazed into the future and have made many predictions about the next decade in textiles. Some of the predictions have been bold, some have been hedged. All are important, if and when they materialize, or if and when they don't materialize.

No writer in this section claims to be clairvoyant. Any one of us will admit frankly that his conjectures are controversial.

And so we stick our necks out for the final time in this section. We invite you—and "you" means every one of the thousands of readers of TEXTILE WORLD—to write or wire us (not your Congressman). Tell us you think we're crazy, if you do; tell us you think we're only half-crazy, if you do; tell us you think we're right, if you do. Deny, debate, or discuss any point raised by us in this section: whether on synthetic fibers, on technological turmoil, on industrial relations, on research, on textile education, on merchandising, on geographical dislocation, or what have you. We'll print anything you send us, so long as it isn't libelous. We don't mind if you libel us (speaking editorially), but we have to protect ourselves against enraged contributors.

Make your contributions as long or as short as you like. We'll find room for it, even if it takes a special issue of TEXTILE WORLD to accommodate what you all have to say. We've had our say; now it's your turn.

Just send your thoughts to Editor, TEXTILE WORLD, 330 West 42nd Street, New York, N. Y. Don't even enclose a stamped and self-addressed envelope for return of your manuscript; we'll use it, so we don't want to profiteer in stamps.—*Editor.*

TEXTILE WORLD

DOUGLAS G. WOOLF, Editor

The Labor Board Has Convicted Itself

IN THE THREE SECTIONS of this Annual Number of TEXTILE WORLD, we have tried to do three separate and distinct jobs. In the first section, the Annual Review and Forecast Section (starting on page 79), we have interpreted 1939 textile trends in terms of 1940. In the second section, the Annual Special Theme Section (starting on page 95), we have interpreted the textile trends of the last decade in terms of the next decade. In this third section, the regular issue of TEXTILE WORLD, we interpret the textile trends of the last month in terms of the next month.

A person doesn't have to be psychic to isolate the event of the last month which demands No. 1 attention on the part of the textile industry, as well as all industry. The hearings conducted by the House Committee investigating the National Labor Relations Board reached a climax and dramatized to the nation as a whole the urgent need for correcting a situation which has undermined employer-employee relationships for more than four years.

It is not necessary, here, to go into the pitiable details of the admissions forced from employees of the Board. Anyone who, like this writer, has attended NLRB hearings around the country has first-hand knowledge of the wholly biased and unfair attitude displayed by examiners and Board attorneys. Evidence given in Washington indicated that the same attitude extended to the review attorneys.

But the Board should not be allowed to make these employees the scapegoats for its own basic arrogance and bias. No such wholesale violation of all standards of justice would have been essayed by field representatives if their superiors—Chairman Madden and the two Smiths (one of whom remains)—had not set the policy which permitted it.

The Board convicts itself by its own rulings and statements. It insists, in the now-famous Waumbec Mills Case, that the Board can dictate to employers whom they should hire, and can force them to pay wages to men whom they had never hired.

Somehow or other, that reminds us of that old and absurd joke about the boy who went up to a fountain and ordered a soda without ice-cream. "Without what flavor ice-cream?" the soda-jerker asked. "Without vanilla," was the reply. "Sorry," said the clerk, "but we haven't any vanilla. Will you take your soda without chocolate ice-cream?"

The Board further convicts itself by claiming that the right of free speech is a "qualified and not an absolute right." That's the way they talked in Germany and in Russia during the transition to complete dictatorship. If not watched, it's the beginning of the end.

The Board further convicts itself when it insists that a company can be forced to permit unions to use plant bulletin boards and company property for meetings even though the Act itself contains no such provisions.

In all such subversive decisions, the Board is supreme. Its findings are not subject to review, as even the U. S. Supreme Court admits.

THERE'S THE MESS. Does anyone doubt that it needs cleaning up? No. So far as we can see, the only really ardent supporters of the Act now left are Senator Wagner, the author, and the members of the Board and their subordinates.

It is industry's job, immediately, to make its stand clear in Washington and to demand revision of the act along these lines, at the very minimum: (1) Separation of the administrative from the judicial functions of the Board. (2) Make all decisions and regulations of the Board subject to review by an outside Court. (3) Place the appointment of examiners and attorneys in the hands of an outside agency. (4) Increase the number of members of the Board to five.

In that process, men like Madden and Smith would lose either their jobs or their power to pervert justice.

Toward that end, every textile association should immediately make the attitude of its membership articulate in Washington. This is a "must" job—and one which should not be muffed.

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Rayon Enters Carpet Field

A FEATURE of the early January carpet opening was presentation by Firth Carpet Co. of a new line of rugs and broadloom carpeting named "Windblown," in which rayon plays the major role. The pile is unusually long and consists of a rayon-wool mix. It may be brushed in swirls to give interesting light and shade effects.

Masland Carpet Mills may launch a rayon carpet in the spring, to be known as "Denicron" and having a regular type pile of rayon and wool, comparable to the usual wool carpet. Other carpet manufacturers have experimented with various types of synthetics and doubtless have lines for offering later.

Although carpet wool threatens to become scarce, prices were not advanced, but were maintained as set in most houses last October. Some manufacturers found business routine; others met an almost excited demand.

"Science at Work", says a sign over this laboratory exhibit set up in the New York office of Firth Carpet Co. to dramatize scientific control as a form of quality insurance

Americana pastels, a new line of 13 colors by Charles E. Cochrane Carpet Co., were presented in an effective window display

Vinyon—Its Story to Date

Properties, applications, and prices of new fiber made by American Viscose

WITH VINYON now in commercial production, with several types of industrial fabrics being manufactured, and with other types in the experimental stage, textile manufacturers are eager for information on this new synthetic fiber. The following story of the progress of Vinyon to date is based on a paper presented by Dr. F. Bonnet, of American Viscose Corp., at a recent meeting of the New York Section of the American Association of Textile Chemists & Colorists, and on additional data furnished by American Viscose Corp.

Vinyon is produced in two general forms—continuous-filament yarn and staple fiber. Sizes at present are 60 den. 46 fil.; 120 den. 92 fil.; 180 den. 138 fil.; 250 den. 184 fil.; and, in the unstretched state, 180 den. 46 fil. The producer is ready to spin other counts if such should be desired, for applications not adequately covered by the sizes now available. The 250/184 and the staple fiber are obtainable only in sample quantities.

Same denier tolerances are observed with Vinyon as with rayon. The yarn is offered on medium-size packages—knotless 11-oz. spools and parallel tubes; and 2-lb. cones. At present it is available only in the bright yarn; however, it can be dulled by pigmentation. While present plans do not include the production of spun-dyed Vinyon fiber, there are no technical obstacles to such production.

Prices per pound effective Feb. 8 are $1.65 for the 60/46, $1.50 for the 120/92, $1.40 for the 180/138, $1.35 for the 250/184, $1.25 for the unstretched 180/46, $1.15 for the stretched staple, and $1.00 for the unstretched staple.

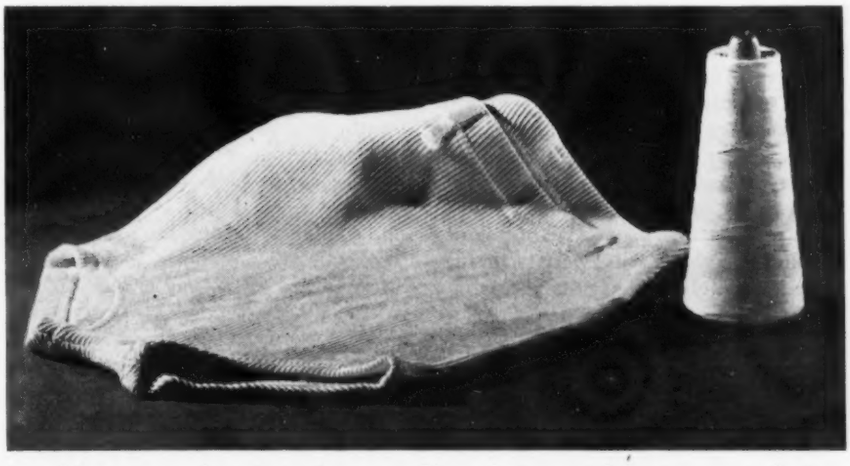
Vinyon is not affected by water and is resistant to acid and alkalis. It dissolves in the lower aliphatic ketones, like acetone, and in some of the halogenated hydrocarbons. In contact with di-ethyl ether or the lower aromatic hydrocarbons it tends to swell; but it is unaffected by alcohol, gasoline, and other aliphatic hydrocarbons. Vinyon is not attacked by bacteria, molds, or fungi, and will not support their growth. It does not conduct electricity and is an excellent electrical insulator. It is thermoplastic, softening at temperatures above 150°F. It does not support combustion, but if heated hot enough, will burn with a very smoky flame. It has excellent flexing strength and stability to sunlight.

TENSILE STRENGTH of Vinyon can be controlled within a range of 1 to 4 grams per denier and elongation from 120% to 18%, the higher strength corresponding to the lower extensibility and vice versa. The tenacity and extensibility of the dry and wet yarn are the same.

In weaving of Vinyon it is well to run with rather high humidity because of the static which develops. Vinyon can be knit under higher tension than is possible with many other fibers, thus producing a tighter stitch. Dyeing of Vinyon seemed at first to offer some difficulty, but this matter is well on the way to solution. At present one dye manufacturer is prepared to dye samples of yarn or fabrics to shade, following up with demonstrations to permit work on a commercial scale.

Vinyon is made from a Vinylite resin, which in turn is derived from natural gas (or coal), salt, water, and air. The synthetic resin—in the form of a white, fluffy powder—is dispersed in acetone and extruded into filaments by a dry-spinning process similar to that employed for spinning acetate rayon. After ageing, the filaments are wet twisted. If high tensile strength and true elasticity are desired, the yarn is stretched and then set by immersion in water at about 150°F. Next the yarn is oiled and twisted and then is redrawn on cones or spools for shipping.

Vinyon is now being employed in manufacture of industrial textiles, including filter cloth, pressed felts, sewing thread, and twines of various constructions. It is expected that during the current year it will find application in various other fields. A few of the important possibilities in this direction are full-fashioned hosiery, bathing suits, shoe fabrics, glass curtains, upholstery, a variety of braided and knit goods, fish lines, nets, electrical insulation, chemical-resistant clothing, shower curtains, sail-cloth, awnings, and fusible shape-retaining fabrics.



In addition to such industrial uses as filter cloths and felts, Vinyon is finding application in such apparel fields as bathing trunks

IT IS INTERESTING to note that in developing textile applications for Vinyon, the producer of the yarn has adopted a program of thorough experimentation to be sure this new synthetic yarn will be employed only under those conditions which may be warranted by its special characteristics and qualities.

What's Ahead for the Mill Village?

Review of TEXTILE WORLD'S 15-year-old plea for readjustment of this burden

By DOUGLAS G. WOOLF

THE MILL VILLAGE is the southern cotton manufacturer's Industrial Relations Problem No. 1.

The present system of a company-owned village, whereby the company takes a loss on its rentals, and other community activities, was originally the product of necessity. There was no other way in which employees in the early cotton mills, established in rural sections, could be given shelter and other services. In the years that have passed since its beginnings, the mill village has taken its place as one of the great socializing forces of the South. In more recent years, it has shown signs of the trouble which eventually comes to many old institutions: maladjustment to new conditions.

A new race of people has developed in the mill community. The manufacturers themselves have created this new race. In doing so, they have rendered partly obsolete the very instrument of creation: the mill-owned village itself.

In addition, labor movements such as the drive toward unionization and the establishment of Federal standards under, first, the NRA, and more recently the wage-hour law have made the burden of village losses—through the negative fact that they represent funds which do not appear in the pay-envelopes—sources of unfair comparison between wages in the North and wages in the South.

This writer foresaw this outcome back in 1925 when he—then an associate editor—conducted a survey among southern manufacturers and prepared an article, part of which is reproduced on the lower half of this page. His thesis was—and still is—that southern mill villages should be placed on an economic, paying basis, the difference to be added to the pay envelope.

In 1929, when Thomas M. Marchant made a similar plea, we seized that opportunity to restate our belief in this matter. That article is reproduced at the top of the opposite page.

In 1930, in the Editorial Inventory prepared when this writer became editor-in-chief of TEXTILE WORLD, our plan for village adjustment was listed as one of our objectives. (See page 97 of this issue.)

STILL MORE RECENTLY, there has been a movement to sell mill-owned villages to employees. This trend was explained and analyzed last September in an article in TEXTILE WORLD by Mildred G. Barnwell, secretary of the Southern Combed Yarn Spinners Association. In an editorial note in the same issue, we pointed again to TEXTILE WORLD'S long drive toward placing villages on a pay-their-own-way basis. The article and the editorial comment

The Problem of Southern Community Activities

Is it advisable and possible to place them on an economic basis? Concerted action the only solution.

By Douglas G. Woolf

GROWTH means growing pains. It means an accumulation of new physical and mental problems which call for continual adjustment if balanced development is to be realized.

Southern textile manufacturers know this by experience. They have encountered and solved many of these puzzling questions, not only during recent years, but throughout the history of their industry. Thus we find them adapting their community activities to meet new standards of living; providing more and more educational resources for their employes as need for these developed—irrespective of the effect upon labor supply; broadening out physically to include fine-goods weaving, finishing, and knitting, in order to develop a self-contained industry; revamping their mill equipment and processes so as to take full advantage of modern mechanical progress

This receptivity tc new ideas, this flexibility and adaptability, explain much of southern success in the past —and augur well for continued development in the future. For these factors will be needed more than ever before.

When the writer made his first trip South, he returned with a firm conviction—which he expressed in print —that southern cotton manufacture is more than an industry—that it is, in fact, a great social force. More intimate acquaintance with that section has tended to strengthen, rather than weaken, this impression.

Unfortunately however this very feature entails tremendous responsibilities. The far-seeing southern mill men would be the first to confirm this fact.

It places upon manufacturers not only the burden of producing cotton yarns and cloth at a profit—and that in itself is often problem enough—but it also involves the question of human responsibility. Granted that this factor plays a huge part in all business and all industry, it must be admitted that it is of even greater significance in a section where the physical welfare, recreation, social contact, education and religion of a people are largely in the hands of a manufacturer and his business associates.

Such is the condition down South.

In developing this thought further, the writer experiences a certain trepidation. It is not an inferiority complex—nor is it fear of expressing an unpopular thought. It is rather the realization—induced by years of journalistic experience—that a theory, no matter how theoretically sound, can not necessarily be transformed overnight into a practical, working principle.

For he has a theory—and it would be better to express it badly at the start, so that he who reads may run—if he cares to. His theory, stripped of all explanatory phrases, is that *sooner or later community activities in southern textile mills should—and must—be placed on an economic,paying basis.*

Today the southern mill worker knows what he wants. Thanks to the manufacturer, he is able to spend money intelligently and to plan for the future. He is rapidly becoming an individual in the best sense of that term—a man or woman to whom self-reliance and self-determination are becoming increasingly important. supplying those two factors is, in the writer's opinion, tomorrow's job for the manufacturer.

But that is not all. There are outside influences to reckon with. Much has been spoken and written during the last five years regarding comparative labor conditions North and South. The unknown quantity in all this discussion has been the actual amount expended by southern communities for community activities. Very definite statements have been made regarding the amount per week which should be added to the southern wage before comparison with that of New England. But the writer believes that no such definite factor is possible. He knows of any number of southern mills where community facilities and expenditures differ so widely that blanket statements are absurd.

There is only one way in which all the innuendoes and implications on both sides can be answered—and that is by the allocation of all wages to the pay envelope—and the charging, on a rational basis, for all community activities.

This is the writer's proposition. He sees no reason for maintenance of sucl. activities as a burden on operating machinery other than that of tradition—which unfortunately is one of the most difficult reasons to answer.

This, then is our case. It is only a casual survey of a very vital matter. We feel very keenly, however, that there is room here for careful and mature thought and consideration.

We are not posing as the necessary constructive genius. Nor do we think that southern manufacturers can be relieved of this village investment. We do believe however that in the course of time they can find a way—*through concerted action*—of placing that investment on a paying basis and thus contributing to the future welfare of the employe and the industry itself.

What About the Southern Mill Village?

By Douglas G. Woolf
Managing Editor, TEXTILE WORLD

ALL of us like to see our pet theories in print. Consequently, the writer particularly enjoyed reading the following paragraphs in an address delivered by T. M. Marchant, of Greenville, S. C., before the Southern Textile Association at Asheville last week:

"Much is being said today, and many comparisons have been made as to our wage scale with that paid in northern and eastern States.

"Why shouldn't the manufacturers adjust such differences as rent on the mill cottages and other conveniences on a basis that is fair and equal, including the increase in the pay envelope?

"The southern cotton manufacturers have received no credit whatever for the cheap rent, in many instances water and lights, as well as other advantages which have been given in the past.

"The comparison then would no doubt be on a more equal basis."

* * *

When the writer started making regular trips to the southern cotton mill district many years ago, he found his greatest interest in the function of that industry as a socializing force. Repeated contacts since then have strengthened his conviction that the effect of the cotton mill upon the citizenship of the South has supplied one the most romantic and brilliant pages of industrial history.

As he studied the background, he recognized the need for just such a type of mill community structure as has been developed in that section. He knew that, unless the manufacturers had built villages, schools, churches, etc. and had paid as much attention to the administration of these activities as they did to the production of yarn and cloth, the South would not have reached the enviable position it has achieved.

He realized, however, that growth and changing conditions demanded continual adjustment of methods and activities. Particularly, he felt that the time had arrived when serious consideration must be given to the possibility of placing mill communities on a paying basis.

This belief was based on several premises but the two most important were as follows: In the first place, the manufacturers, through these very community activities, had developed a race of people to whom self-reliance and self-determination had become increasingly important. They were no longer in the stage where their lives had to be directed for them and their money spent for them. They had taken their places in the front ranks of American citizenship.

In the second place, the attention which the growth of the southern cotton manufacturing industry attracted to itself, necessarily entailed public comparisons of wage levels there and those existing in other sections of the country. These comparisons have always been unfair because they have not taken into consideration the amounts spent by southern manufacturers on community activities.

The answer was an obvious one. The writer expressed it as follows in the Annual Review and Forecast Number of TEXTILE WORLD, published Feb. 7, 1925:

"Much has been spoken and written during the last five years regarding comparative labor conditions North and South. The unknown quantity in all this discussion has been the actual amount expended by southern communities for community activities. Very definite statements have been made regarding the amount per week which should be added to the southern wage before comparison with that of New England. But the writer believes that no such definite factor is possible. He knows of any number of southern mills where community facilities and expenditures differ so widely that blanket statements are absurd.

"There is only one way in which all the innuendoes and implications on both sides can be answered—and that is by the allocation of all wages to the pay envelopes—and the charging, on a rational basis, for all community activities."

* * *

Developments in the South during recent months indicate the need for such a change—even though actually it is only a bookkeeping one.

The fact that manufacturers like Mr. Marchant are thinking in this direction is significant. The writer knows, from personal contact, that there are many mill men throughout the South who are in utter smypathy with this basic proposition. He recognizes the chief obstacle in the way—that of developing concerted action whereby the change can be effected, since it is not a job which can be done sporadically by individual mills. He knows it cannot be accomplished over night but he believes that it is worth earnest consideration of the various State associations in the South and of the American Cotton Manufacturers Association.

are reproduced, in part, at the bottom of this page.

The plan of village sales to employees is only a partial answer. It cannot progress fast enough to place the whole southern industry on a sound basis—and in no case should such sale be pushed by high-pressure methods. The only industry-wide answer is the type of adjustment we advocated in 1925, in 1929, in 1930, and again in 1939.

In the 1925 article, we stated that the change should be done by concerted action—that is, by the associations. In 1929, we re-stated this conviction, and specifically urged its earnest consideration by the various State associations and by the American Cotton Manufacturers Association.

Again today, at the start of a new decade, we urge the southern industry to place this objective in a prominent place among its agenda. It is desirable, constructive and obtainable.

Selling Mill Houses to Employees

Increasing trend in that direction marks new era in industrial relations

BY SPECIAL CORRESPONDENT

A NEW TREND in thought covering southern cotton mill economics as well as southern industrial relations is exemplified by the growing move to sell mill-village houses to mill employees. This trend is definitely part of the new order of things and it promises to bring a new era of better times, financially and psychologically, to those mills and those employees participating in it.

By selling its village to employees a southern mill does two things: It helps itself by resigning from the real estate business into which it was forced many years ago by inadequate housing facilities for the increasing number of workers needed by an expanding industry; and it helps today's textile mill employee assume his rightful sense of responsibility toward his community.

That this move arises from a financial exigency on the part of the industry is not denied. But it is not an emergency move; it is the culmination of events of the last 10 years. It will be the levelling-out process by which the employees may realize on a small week-to-week investment; by which the mill may realize on the eradication of an ever-present loss; and by which both may benefit immeasurably from the new psychological attitudes derived from better employer-employee relations.

No mill has ever made money out of operating a mill village. In the beginning they may have "broken even," but in the last decade of narrowing profit margins the losses entailed in this activity have become distinctly appalling. Rents from the villages have not kept abreast of the increasing taxes and other costs, but have remained on the basis set 30 or 40 years ago. Today village losses threaten the southern industry.

It is true that the purchase of a home means a lower net wage return during the period of amortization, but it also means a higher net wage return at the end of ten years when the house is paid for, and when the employee will be older, and—presumably—more in need of cash and security than today. Owning a home is the age-old form of social security attained by independent means. Buying one on the installment plan is the American way to a more independent future. It is not surprising that the southern mill worker jumps at the opportunity offered to buy his own home. It is really the most natural thing in the world, for this country was built and developed through the urge of its people to own property.

Purchase of a home by a mill employee may entail certain sacrifices, but it also has its satisfactory rewards. It automatically removes him from the class of mill worker to the class of property owner. By becoming a property owner he becomes in his own mind and in the minds of others a bonafide citizen of the community. As such he is bound to develop an intense sort of pride in living in that community. Folks who live for years in an ugly rented house will, upon buying it, immediately start beautifying the property. It is always the same, whether the purchaser is a merchant, a banker, or a card grinder.

A man who is a property owner, no matter how small that property may be, feels stability when he talks about "our town," "our street," "our school." It makes him want to preserve law and order for the protection of his family and his home. It makes him want to see good business continue without interruption (and in a cotton mill village good business means a payroll every week), for a home owner feels he must guard the investment he represents.

Selling mill villages to the employees means industrial relations on a higher plane; it means more stable labor conditions since only people of responsible natures desire to own homes; it means the shedding of the last vestiges of paternalism which was once a necessary, but is now an outmoded pattern of southern mill life. Employee-owned mill villages portend better days in the industry and in the lives of the employees.

THE EDITOR SAYS

The Mill Village

For nearly 20 years we have been pointing out in these columns the seriousness of the burden which a mill-owned village places upon a textile manufacturing company. From time to time we have urged that company houses be placed upon a pay-their-own-way basis, not only to remove the operating loss but to avoid the criticisms and comparisons which the present system invites.

Recent trends have indicated a growing sympathy with this point of view, and in fact a number of manufacturers have taken steps to put their rents more in line with actual costs. Still more recently, actual sales of mill villages to the employees have grown in favor. This development is summarized on page 64 of this issue.

This can be chalked up as one more indication of textile progress

Want to Sell South America?

A potentially important but tricky market; also notes for job seekers

BY WILLIAM G. ASHMORE
Southern Editor, TEXTILE WORLD

Many inquiries concerning textiles in South America have been received since the first of these articles appeared, largely from two classes: those wanting to sell the South American market and those wanting to work in South America. This article throws out a few hints which may help both groups.

IF YOU WANT to sell textile machinery or supplies in South America first get a large scale map and study the continent. It is important from the beginning to realize that South America is vast and cannot be considered as a unit. Each country presents special problems, and in many instances different sections of an individual country. Brazil, for example, covers more territory than the 48 states of the United States and has a climate ranging from tropical in the north to temperate in the south. Argentina is perhaps one-third as large as the United States. Chile has a 3,000 mile coast line.

Most of the countries are very thinly populated and in some instances 75% of the population is illiterate and extremely poor. Chile has only 4,500,000 persons; Ecuador, 2,500,000. Brazil, the largest country, has 45,000,000 persons, but only 25 to 30% of these have any appreciable buying power as individuals, although in the aggregate Brazil represents a sizeable market for many products. The important fact, however, is that some of the countries offer a comparatively small market, and great distances and poor transportation make selling very expensive.

Viewing their textile industry, it is more important to consider size and condition than number of mills given in trade lists. Of several hundred listed textile mills in Argentina there are only about 20 cotton mills of any importance. The cotton-textile industry of Chile consists of 42,000 spindles and 2,000 looms concentrated largely in two plants although many more mills are listed. Colombia, the third textile country in South America, has about ten cotton mills worth trying to sell.

Latin America, including Mexico, Central America and Cuba, buys normally about $2,000,000,000 worth of goods of all kinds annually. A good slice of this goes for textile machinery, cloth, yarn, and textile supplies. The British sell most of the spinning and weaving equipment, the Germans most of the dyeing equipment; miscellaneous machinery is purchased in the United States, France, Belgium, Italy and Switzerland. American machinery is increasing in popularity, especially on the West Coast of South America. Recently, Brazil has begun to go in for American equipment on a larger scale although a good part of it is second-hand. The United States sells some fine cotton and rayon yarns in South America, but prior to the war England and Germany did the bulk of this business, and most of the fine woolens and worsteds as well.

Germany has been selling from $200,000,000 to $300,000,000 annually in products to Latin America through barter deals and special trade agreements. The United States, which, prior to the war, was holding its own in general exports to all Latin America with about one-third of the total, and England were the other chief suppliers. Obviously, at least for the duration of the war, the United States is going to get an increased share of business which formerly had been going to Europe. Students of South American economics, however, are dubious as to what part of this increased trade the United States is going to retain after hostilities cease. European nations are going to be desperate for foreign trade after the war, and this writer looks for more vicious trade practices than we have ever seen before. Americans who look on South America as a bonanza should be extremely cautious since the whole picture could change overnight.

I am not enthusiastic about South America as a market for American textiles because of foreign competition, the nature of the products and because of local trends toward industrialization.

Actually a tremendous number of inquiries for American machinery and supplies have been received in recent months. One large manufacturer of textile machinery told the writer several weeks ago that up to that time he had received inquiries totaling over $1,000,000. However, his actual sales had been only a small percentage of that figure. Within a few days after war broke out the McGraw-Hill Spanish language export magazines received hundreds of orders for subscriptions from Latin America and numerous letters from individuals seeking everything from diesel engines to knitting needles. Early enthusiasm, however, has been replaced with the cold realization that it is not as simple as it appears on the surface to do business with the Latins.

When investigation shows an actual market in South America, the next big problem facing the American exporter is that of credit and exchange. Most countries have exchange restrictions based on the financial condition of their Government and on trade agreements with other countries. For example, when I was in Argentina last summer a 60% quota had been placed on American automobiles, based on the previous year's imports, and over 300 other American products were on a restricted list. Brazil for several years prohibited foreign companies from taking profits out of the country, but this situation was relieved to some extent last year. American goods are looked on with favor, but price and credit differentials defeat many sales. The United States, through the Export-Import Bank, is extending credit to many Latin American countries, which is helpful at present.

ANOTHER PROBLEM facing the American seller is method of distribution. Should he employ a local agent or send a factory representative? Best opinion is that connection with a reliable local agent is desirable at first. There are agents in every country who know the trade intimately and can be depended on to do an honest job. These men can be contacted through American export associations, American banks with branches in the country under consideration, American Chambers of Commerce in key South American

cities, etc. The U. S. Dept. of Commerce is also helpful. If a factory representative is essential, it is almost imperative that a special man be sent to each major country because of distances and complications in traveling, and the necessity for knowing each territory intimately. Further, the special representative should have a knowledge of the language and be sufficiently flexible to learn Latin methods of doing business. All business correspondence should be carried on in the language of the country as a matter of etiquette as well as to prevent misunderstanding. Portuguese is spoken in Brazil, and a letter in Spanish, at least without a word of apology, is considered an affront. Circulars and mailing pieces also should be translated to be most effective. It is possible to do business in English since most business men either speak it or have an interpreter handy, but knowledge of the native language would facilitate matters.

Most South American business men are as ethical as most U. S. business men despite different methods of doing business. However, as in every part of the world, there are unscrupulous persons looking for a sucker, and it is advisable to investigate carefully any agent or representative employed locally. Also, if a European agent is employed, it is possible that he may neglect your account or drop it entirely as soon as European goods are again available. The new crop of U. S. "exporters" should be employed with care as many are nothing more than opportunists attempting to cash in on war conditions.

Another thing to watch carefully is trademark and patent practice. American residents in some countries will tell you cases where U. S. companies selling advertised products have been forced to pay substantial sums for the privilege of using their own brand names. A U. S. cosmetic firm is reported to have been held up for $125,000 by a South American firm which had thoughtfully registered its trademark a good many years ago. A nationally known soft-drink company, is now engaged in litigation over this same problem. An American automobile company lost a suit for $10,000, while I was in one of the capital cities, over a gadget on the dashboard they failed to patent. Laws may change from day to day, along with some of the weaker governments. Customs officers often seem to manufacture laws to suit the occasion, and it is easy to get into much expensive trouble.

Despite all the complications and disadvantages, there is a market for American goods if manufacturers will study the situation locally and devise methods of meeting European competition. The same thing generally applies to the American interested in establishing a branch manufacturing plant. There is plenty of room for new mills in most of the countries, although it is not simple to make a success without careful study and preparation.

MOST INQUIRIES concerning South American jobs come from relatively young men, some still in college. They probably look southward with the same romantic yearning that young men of another generation looked westward in this country. There is some justification for their interest, because most of the countries are still largely undeveloped industrially. With capital, initiative and a sound knowledge of conditions, the chances are that an American with modern management and machinery could do very well in South America. However, this same man with capital and the other requisites could probably do all right at home.

Docks at Santos, Brazil, a typical port stretch for miles along the river. Under normal conditions scores of freighters from all nations tie up here

Looking at these countries from the standpoint of "just getting a job" is something else again. In the first place, it is very difficult to get into most of the countries, even as a tourist, without a great deal of red tape. Argentina requires a round-trip ticket before granting a visa. I met several young men working for American firms who, even after a couple of years of foreign residence, were uncertain as to when they might be deported.

The best bet for the man without experience or capital is to connect with an American firm here before leaving or with a reputable native firm having American connections. Unfortunately, there are not many American companies directly interested at present in South American textiles, although there are plenty of American companies there in other fields. So far as I know, there is no American-controlled textile mill in Brazil and only one in Argentina. On the West Coast, W. R. Grace & Co. have a number of mills in different countries, and I understand that there is American money in one or two Colombia mills. Under pressure of a strong spirit of nationalism, foreign technicians are being replaced as fast as possible with natives. Nearly every country has a law requiring from two-thirds to 95% of a company's employees to be natives. American chambers of commerce, banks and textile machinery manufacturers sometimes know of desirable openings in foreign countries.

The matter of compensation is very important to a person taking a foreign job. Usually this is worked out satisfactorily, when a connection is made at this end, on a contractual basis. South American living standards are generally much lower than ours, and I heard of native plant managers earning in Brazil as little as $100 a month. The average overseer makes about $25 a month in the same plants. This will buy perhaps three times as much as in the United States, but it is still low. Salaries are higher in other countries, such as Argentina and Venezuela, but so are living costs. Actual living costs for Americans in Buenos Aires are at least two-thirds as much as in the average American city. Generally an American should insist on being paid in American dollars if employed by a native firm, since local currency tends to fluctuate. Living is very pleasant in most South American capitals and larger cities, but it can be deadly in smaller places in the interior. The average American who works over three years in the southern continent usually finds it difficult to fit back into the picture at home, which means that he may spend the rest of his life in a foreign land whether he likes it or not. I strongly advise any one who can afford it to visit South America as a tourist before moving permanently.

Silk, a Specter at Hosiery Feast

Well-attended conference hears about commodities, war, wage-hour, and export

SILK was the "specter at the feast," at the recent hosiery conference in New York. Its ghostly visage confronted many of the speakers, and peered over the shoulders of manufacturers as they talked together at luncheon or met in the hall. There was no unanimity of attitude toward this family skeleton. Feelings ranged from rosy hopes that synthetics would soon account for the vast majority of hosiery production and so give the manufacturer a really stable raw material, to almost passionate regret that a grand old raw material had so been led astray as to make a temporarily unfavorable impression upon its best friends.

The hosiery industry conference was held at the Waldorf-Astoria Hotel on Jan. 17 and 18. It brought together over 300 knitters, sellers, and related executives, who heard from the lips of experts comments on the commodity situation, the economic effects of the war, Latin-American trade, and the wage-hour law.

Earl Constantine, president of National Association of Hosiery Manufacturers, in reporting net growth in number of plants during 1939, which amounts to 84 (78 full-fashioned, 6 seamless), emphasized that these figures mean absolutely nothing without information on equipment. As a result of a resolution offered by John Wyckoff Mettler, president of Interwoven Stocking Co., the meeting went on record as authorizing a re-survey of the industry's knitting equipment during 1940 covering information on shifts normally run, machine speeds, and on equipment stored or in hands of brokers, as well as on that actually operating.

Mr. Constantine announced that the trade-practice rules on fiber content, sponsored by the Federal Trade Commission, would be laid before the industry at a meeting in February. Mr. Constantine also reported that the Department of Justice regards the quota agreement with the Japanese Knitters Export Association, which expired on Dec. 31, 1939, as a violation of the anti-trust law, and that it would consequently not be renewed. However, he understood that the Japanese group would continue voluntarily to control their exports within the 1,500,000 doz. prs. previously set, and that these exports now also include those from China.

Substitutes for silk were in the forefront of discussion among full-fashioned men at their group conference; that cotton and rayon are not strangers to their products was demonstrated by figures to the effect that in 1921 only 13% of shipments were of all-silk construction and 54% of women's full-fashioned hosiery had cotton tops, heels and toes. By 1937 73% of shipments were all silk, and cotton reinforcement had diminished to 23%. As late as 1930 cotton tops, heels and toes constituted 65% of the hosiery shipped, and in 1934 represented over 48%.

Already in the current season leading companies have held their old retail price brackets by showing new adaptations of cotton tops, heels and toes, together with entirely new developments in rayon reinforcement. There is also the combination rayon and silk leg which is meeting some success, and, of course, later in the season there will be Nylon. Beyond that, there is soon likely to be hosiery made of the new strong rayons, as well as of Vinyon.

★ ★ ★

AN IDEAL CONFERENCE

The hosiery industry conference, now an annual affair, is an ideal type of meeting. It brings together all groups and divisions of one industry, irrespective of associational lines. It provides for certain public sessions at which the broad problems of the industry can be presented for the enlightenment of both its members and all the allied groups. It sets aside executive sessions at which the members may face facts, without any of the hesitancy which unavoidably characterizes open meetings.

The conference therefore represents the type of associational activity which the editor of this publication has been advocating for years. This *is* coordination—active, constructive, practical. For its accomplishment, credit is due the National Association of Hosiery Manufacturers, the Full-Fashioned Hosiery Manufacturers of America, the Southern Hosiery Manufacturers Association, and the Woolen Hosiery Institute of America. The executives and members of all those associations have contributed unsparingly to its success. We believe there will be general and ready agreement, however, to the statement that Earl Constantine's leadership has been the most important single factor. It is that type of leadership that brings solidarity to an industry—*Editor.

QUALIFIED SPOKESMEN analysed the commodity situation.

"Cotton is again playing an important role in the manufacture of hosiery," said Dean Hill, president of the Mercerizer's Association of America. "Not only have we had announcement by many full-fashioned silk hosiery manufacturers of their intention to use mercerized cotton in welts and plaited feet, but records show that the production of women's full-fashioned mercerized cotton hosiery is on the upgrade."

Mr. Hill stressed the value to the industry of a more diversified hosiery wardrobe for women. "Why should a woman wear the same type of hosiery with a tweed suit," he asked, "as she wears with a silk afternoon dress?" He pointed also to the cotton hosiery project instituted by Congress, and stressed the promotional value in a line of Government-styled goods.

Stanley B. Hunt, of Textile Economics Bureau, as spokesman for rayon, traced the history of that synthetic in the hosiery field for the last 18 years, pointing out that its consumption reached a peak so far as hosiery was concerned in 1931. To illustrate the trend in materials, he offered the following estimated fiber consumption by hosiery industry in millions of pounds:

	1922	*1939*
Cotton	85	60
Wool	5	5
Silk	9	37
Rayon	6	18
Total	105	120

He pointed out that for each of the last five years about 5% of rayon's total shipments have been to the hosiery industry, adding that a nice balance must be maintained by rayon producers between their various customers and the various types of use for rayon. In closing he touched briefly upon the new extra-strong rayons, on Nylon and Vinyon, and on other new fibers which may still be in the laboratory. "I think it

would be a tragic mistake," he said, "for the hosiery industry not to be abreast of, and thoroughly informed about, these many new developments in new fibers for hosiery."

Analysis of the silk situation by W. A. Spafford, of Newberger, Loeb & Co., was read because of Mr. Spafford's absence due to illness. He considers the 1938–40 period a transitional one in the silk market, with demands outrunning supplies for the first time in about ten years. Looking forward for the first six months of 1940, he figures a supply deficit of 60,000 bales with the conclusion that prices must range above $3.25 to effect the necessary curtailment of use.

Admitting that the rise of silk in the latter part of 1939 was largely speculative, Mr. Spafford added, "While a decline of the proportions noted since Jan. 8 naturally feeds on itself in the matter of weakened speculative accounts, etc., ... I am not of the opinion that we are now in a primary bear market." He did not see the Nylon competition as anything beyond a psychological factor, for he estimated its displacement of silk for 1940 would not be more than 4,000 to 6,000 bales.

Paolino Gerli, of E. Gerli & Co., posed the question, "Has silk a proper place in the family of fibers?" If so, he believes that it is only a question of a short time before the price must readjust itself to its proper economic level. He spoke of the strong sentiment in many quarters for a stabilized market and indicated that the lessons of the recent experience are forwarding an actual movement to this end.

E. D. Walker added a few words to the silk symposium by describing the recent situation as a "fantastic contortion of economic thought." He expressed his belief in a considerable hoarding of silk in Japan and ventured the prediction of an over-supply of 100,000 bales for the first six months of 1940.

ALTHOUGH THE HOSIERY INDUSTRY is not directly a beneficiary of war, it is subject to indirect effects of growing importance, and these were discussed by Murray Shields, economist of the Irving Trust Co., New York. Mr. Shields pointed out that the first impact of war had driven industrial production above consumption, and that the Federal Reserve Index of Industrial Production at 129 in December (higher than in 1937 or in 1929) can be maintained only by the application of most powerful influences such as further spending by the Government, a change in Government policies which might produce a confidence boom, a war-order boom, or a combination of those influences.

Mr. Shields analyzed statistical trends during the 1914–1918 period, and concluded that the United States might expect a war boom at present only when the needs of the allies become greatly increased or in event that transportation shortage forced England and France to buy at the nearest market, which is that of the United States.

Robert E. Holt, of Amsinck, Sonne & Co., New York, spoke on Latin-American trade opportunities. He stressed the fundamental fact that the United States cannot hope to take over Germany's exports to South America without absorbing considerably more South American products. "Since this country now takes its full requirements of South American exports," he said, "and is already by far South America's largest buyer, a serious problem presents itself.

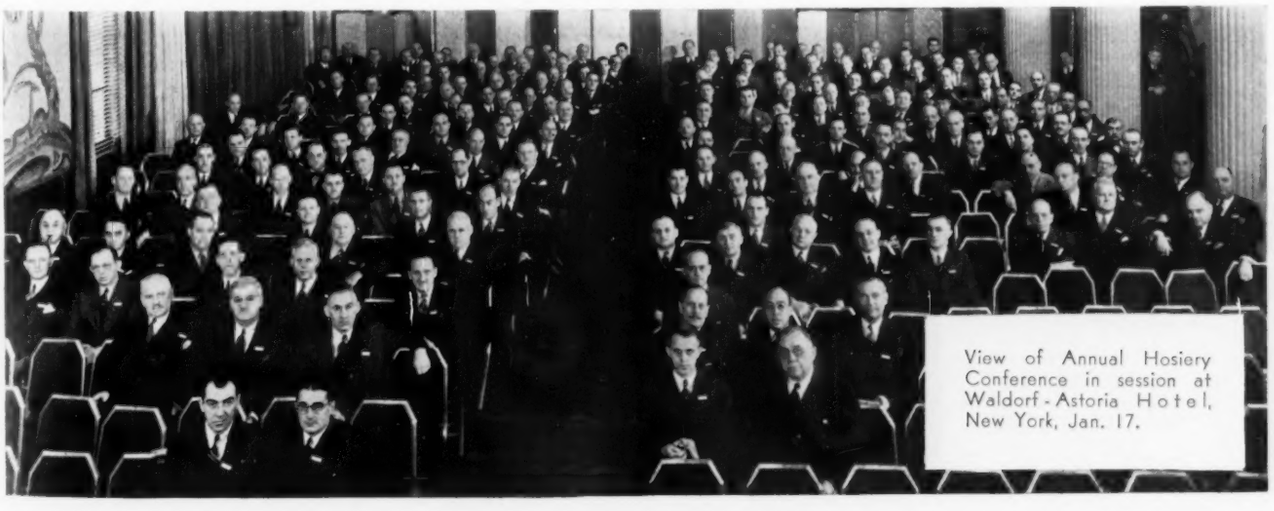
In considering details as to how South American business may be accomplished, Mr. Holt said that this could be done, as elsewhere abroad, through local branches, resident agents, traveling representatives, or American export commission houses. Among many details that must be carefully handled are credit, length of terms, tariffs, quotas and availability of dollar exchange. He expressed hope that trade could be facilitated by negotiation of trade treaties and perhaps Government credits.

Merle D. Vincent, director of the hearings branch, Wage and Hour Division, Department of Labor, sketched briefly the ideals and interpretations of the Division.

"The hosiery industry is one of our highly competitive industries," he said. "I believe it is important to the national economy to maintain open competitive markets. This presupposes a high degree of equalized labor and market costs, leaving competition a free play in fields of design, quality, and management . . . You are aided by an organization of labor that permits management and labor to negotiate terms of employment which tend to stabilize labor costs."

In speaking of learner exemptions, he said, "We should be cautious and not permit these allowances to break down minimum wage standards when there is no actual need for the exemption." He also spoke of exemption for handicapped workers and stated that from all industry the Division has so far had only 5,000 of these applications and has issued 2,400 certificates.

In answer to a question, Mr. Vincent indicated that the Division's exemption orders were not final, but on presentation of new facts it was possible the hearing might be reopened. He also explained that the 5% learners permitted was 5% of total employees and that this 5% might be placed in any department or departments as management desired. He also referred to the learner provisions as applying to plants in schools, and stressed that where commercial production resulted, employment would not be permitted outside of the Division's rates and conditions.



View of Annual Hosiery Conference in session at Waldorf-Astoria Hotel, New York, Jan. 17.

Fig. 1. Exterior of new building of Hanes Hosiery Mills Co. at Winston-Salem, N. C.

Hanes Hosiery Opens New Unit

Innovations in design and construction feature recent addition to mill

PURELY FUNCTIONAL – this phrase describes adequately the three-story addition to its plant recently erected by Hanes Hosiery Mills Co., Winston-Salem, N. C. The building was constructed to satisfy increased space demands caused by growths in the business. Hanes, already the largest mill in the United States making women's seamless hosiery, is now able to increase production to 5,200,000 doz. pr. annually. Present floor space totals 405,000 sq.ft.

The new building, which is shown in Fig. 1, was designed by Albert Kahn, Inc., Detroit, Mich. It is said to be unique in so far as the several functions of each floor necessitate differing treatment, heating, and lighting; yet, the design has been made flexible enough to provide for future changes.

All operations from pairing to shipping, inclusive, have been removed from the old building and relocated in the new. From the original building, in which knitting, dyeing, and boarding take place, hosiery is transported to the new one through a passageway which connects with the third floor of the new plant. On this floor, inspection and labeling operations are performed. On the second floor, packaging, storage, and shipping departments are located. This floor is level with the street on the railroad-track side; hence the finished product goes direct to the loading platform. The first floor is being utilized for warehousing; in one corner, are located wash and locker rooms. A three-story projection, 16x162 ft., houses toilets, stairs, elevators, first-aid room, and other services. Corresponding with the stairwell, which is centrally located in the service portion on the south side of the plant, is a large glass block panel running the full height of the tower. A 7x58 ft. shipping platform is located on the railroad side of the building.

The first two floors are designed with sufficient windows to enable work to be executed under ordinary daylight conditions, but are also equipped with standard Mazda lamps which can provide uniform lighting of 5 foot-candles intensity. Fig. 3 shows the windows and lighting fixtures in the boxing department on the second floor.

On the third floor, in the sorting, inspecting, and labeling departments, daylight is obtained primarily through top monitors, although the east and west sides contain a few small windows placed in balance with those on the first and second floors. Inclined monitors run from east to west; give ample uniform lighting throughout the floor area. Roof monitors on the north side are of ¼-in. rough wire glass; on the south side ¼-in. glare-reducing Coolite wire glass has been used. Windows on south and west sides have Coolite sheet glass; those on the north and east sides have sheet glass, hammered.

Artificial lighting on the floor includes the Mazda system common to other floors and fluorescent lights placed directly on each work table, as shown in the view of the pairing department (Fig. 2). An intensity of 15 foot-candles is found sufficient by using this virtually individual direct method of lighting. Incidentally, all circuits are designed to allow for increased light values.

A UNIQUE METHOD of heating, ventilation, and humidification is installed on the third floor, on which 500 girls are employed. Four 20,000 cu.ft. per min. Air & Refrigeration Corp. capillary units deliver air at only four points in this large room, yet give uniform distribution of air.

In addition to heating, ventilating, and humidifying this area, the capillaries are capable of maintaining the temperature within the room, by means of evaporative cooling, at a point not in excess of the outside temperature. By addition of cooled water, these capillaries will be capable of reducing the temperature of the room to 15° below outside temperature.

Room air pressure is controlled by automatic louvres located in windows at the ends of the building. As an

Fig. 2. Pairing department in new building: note fluorescent lighting and air diffuser

auxiliary control for use under excessive temperature conditions, large circular ventilators are placed at strategic points in the roof.

Steam heating is used throughout the building. It is furnished from a central boiler plant, which also serves the rest of the company's buildings. On the first and second floors, Trane Co. unit heaters are so located as to distribute heat evenly throughout the manufacturing area. Power is taken from incoming primary lines and transformers furnished by the Duke Power Co. Low-voltage regulators are used to maintain constant light voltage.

A conveyor system of chain type, furnished by Palmer Bee Co., and shown in Fig. 4, is used for carrying cardboard containers from the second floor to stock tables located on the floor above. For all other processes the products are transported in trays loaded on trucks.

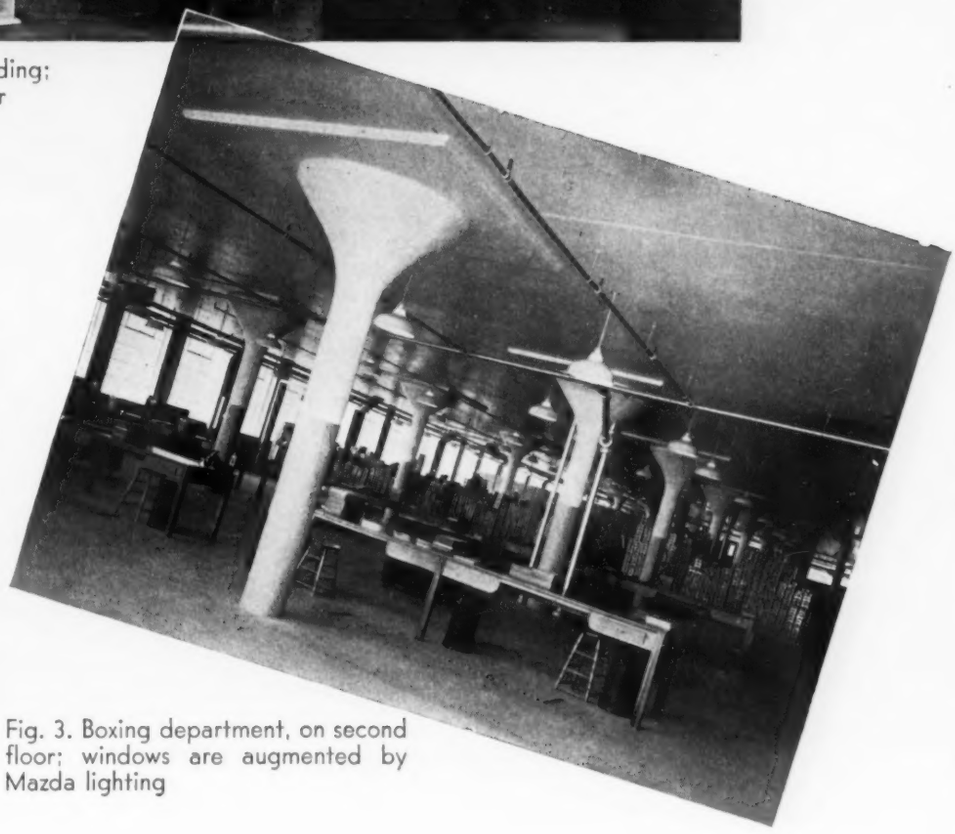


Fig. 3. Boxing department, on second floor; windows are augmented by Mazda lighting

CONSTRUCTION DETAILS follow: The first two stories are of reinforced concrete with mushroom-type circular columns and flat-slab reinforced concrete floors. The third story is of structural steel H columns, with bent-beam trusses. Exterior walls are of red face brick; interiors are of unglazed tile. Floors are of flat-slab reinforced concrete. The first has a cement monolithic finish; the second, a cement Ce-Mas-Co finish; the third, Bruce 25/32-in. beech-block wood flooring set in mastic.

First- and second-story ceilings are of concrete. The third story has a ceiling of structural steel and steel deck, left exposed. No insulation is used between floors or in walls. Roofing consists of Truscon Steel Co. steel deck with 2 in. corkboard insulation, waterproofed with 4-ply Barrett Co. tar and gravel coating.

Fig. 4. Conveyor system for carrying hosiery boxes from second to third floor

High-Speed Printing

New process developed at Clearwater offers advantages over present methods

WHAT IS undoubtedly the most important improvement in many years in textile printing equipment is the new high-speed process described below. The editors are indebted to Harry A. MacKnight, superintendent, Winsor & Jerauld Mfg. Co., who furnished the drawing, photograph, and much of the technical data on which the following article describing this development is based.

PRINTING SPEEDS approximately double those obtained with conventional methods are made possible with a new process developed at Clearwater (S.C.) Mfg. Co. In addition, the new process obviates stopping of the printing machine for changing cloth rolls, completely eliminates use of backgrays, saves 5 to 10% of color used, insures more perfect register all the way to the edge of the fabric, and requires considerably less power than do regular printing machines. This new method of printing was developed and patented by the late Murray N. Bulford, until his recent death general manager of Clearwater Mfg. Co. United Merchants & Manufacturers, Inc., controls the patents and is expected soon to announce a plan for licensing the process to other printers.

In brief, the new method of high-speed printing is made possible by a machinery arrangement consisting basically of a printing machine equipped with a special ball-bearing water-cooled cylinder, a scray which feeds the fabric in such a manner that the rolls of cloth can be changed without stopping the machine, and a tenter frame which straightens and delivers the cloth to the printing machine at high speeds. The mechanical arrangement is such that the cloth is fed directly onto the blanket without use of a backgray. Following several months of successful operation of a two-color experimental machine, an eight-color machine embodying the same principles has been constructed and set up at Clearwater, where it is now in operation.

Indicative of the speed of the process is the fact that the two-color machine recently averaged 6,200 yd. per hr. for 18 hr. on shirtings, as compared with a possible average of 3,300 yd. per hr. for the same goods on a conventional machine. This represents a gain of almost 100%. However, it must be remembered that the speeds vary somewhat with the type of goods being run. Possibly even more important than the increased speed of operation is the fact that the machine does not have to be stopped in order to change rolls of cloth. An average run without stopping for this purpose is said to be 30,000 yd. per 8-hr. shift. It is easy to see the enormous advantage offered here, when it is taken into consideration that a roll of cloth usually contains only about 1,800 yd. Dividing 30,000 yd. per run by 1,800 yd. per roll gives 16.6 stops per shift. If each stop averages 3 min., the total loss is nearly 50 min. out of the shift, or over 10% of the operating time. Another large saving results from the use of 5 to 10% less color.

IN CONVENTIONAL PRINTING the usual practice is to engrave the roller from 1½ to 3½ in. beyond each selvage of the cloth in order to take care of variation in the cloth width, as well as some shifting about as the fabric is printed. With

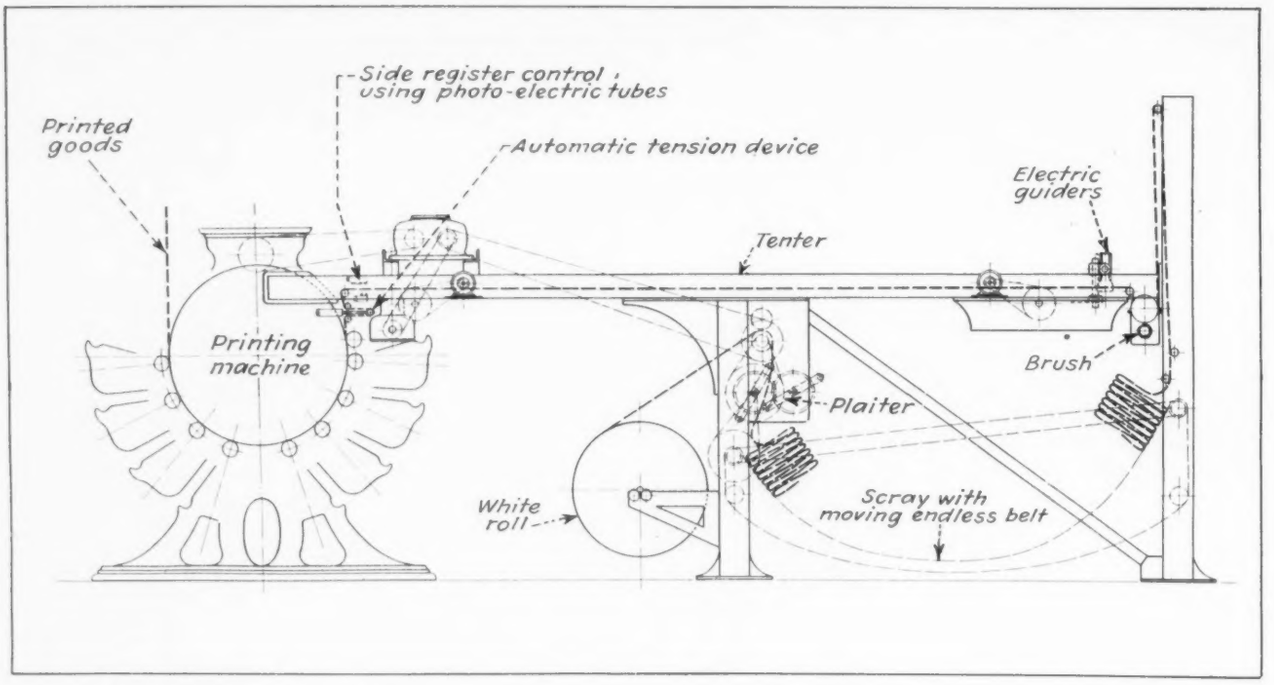


Diagram showing arrangement of printing machine, scray, tenter, and auxiliary devices used in conjunction with high-speed process developed at Clearwater

the new process, use of a tenter frame and photo-electric cell guide makes it possible to engrave the roller exactly as wide as the cloth, since the fabric can be held right to the edge of the engraving at all times. In other words, for 35-in. goods the engraving need be only 35 in., instead of the usual 38 or 42 in. widths. In addition to saving 3 to 7 in. of color, which normally would be printed on the backgray, the engravings are shallower and require less color to fill the grounds.

It is estimated that savings effected by total elimination of the backgray will run as high as 1/8¢ per yard in some cases.

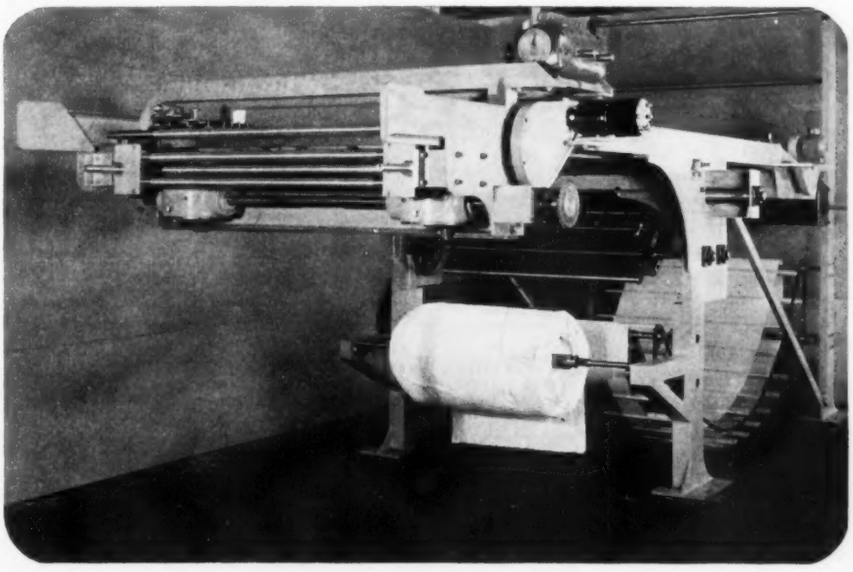
Actual power savings had not been checked at this writing; but, because of its precision construction, the new machine is expected to use considerably less power than the conventional machine on a yardage basis. It is possible to turn the ball-bearing cylinder of the new machine with one hand. Another logical reason for use of less power is the smaller amount of pressure exerted on the cylinder by the rollers. On blotch work, for example, rollers are so set that they barely touch the cylinder.

Other advantages of the process are the extreme precision of register, fidelity of color, and elimination of streakiness. The machine can be set so accurately that it is possible to print a specified width of white selvage to order.

All types of dyes can be used successfully on the machine, including vat, Indigosol, and resin-pigment colors.

The new eight-color machine is quite compact, occupying no more floor space than the conventional machines which are lined up on both sides of it.

The fabric is prepared in the usual way by bleaching, drying, tentering, and winding on rolls. At the printing machine the cloth goes from the roll to the scray where a beater folds it evenly at a rate which keeps sufficient yardage ahead so that a new roll can be placed in the creel and sewed to the cloth in process without stopping or slowing the printing machine. From the scray, the cloth travels over tension bars which tend to control the bow in the filling, and then through a brushing chamber where lint is removed by means of a combined brush and vacuum arrangement. From the brusher the cloth goes up to the tenter, which is located above the scray in order to conserve floor space.



Scray and tenter employed with new high-speed printing process

The tenter frame, built by Winsor & Jerauld Mfg. Co., Providence, R. I., is designed for high-speed operation and is equipped with clips which will operate at 200 yd. per min. Entering rails are controlled by Schwartz-type guides to prevent let outs. Delivery rails are independently and automatically positioned by photo-electric guides which place the cloth selvage exactly and continuously at a predetermined location on the cylinder of the printing machine. This light beam precludes the possibility of disturbing the selvage by means of mechanical feelers. Another set of tension bars at the delivery end of the tenter keeps wrinkles out of the cloth and is said practically to eliminate the creep or float of cloth under the copper rollers. This device further tends to synchronize the speed of the tenter with that of the printing machine. Whereas the feeding tenter and scray were designed primarily for use with the new process, it is obvious that addition of the unit to any printing machine would be both possible and advantageous.

From the guiding arrangement, the cloth goes directly to the cylinder-blanket of the printing machine. The printing machine was built by Textile Finishing Machinery Co. A similar type of printing machine is being constructed by Rice, Barton & Fales for installation at Cranston Print Works. The cylinder is covered with a rubber compound cooled by means of a water jacket. This cooling arrangement is designed to protect the rubber covering from deteriorating from heat generated by pressure. Experiments have proved that the clearest impressions are made with the use of a hard cylinder for shirting patterns, and a somewhat softer surface for blotch work. Work is going forward in an effort to develop a method of determining the exact pressure on the mandrel bearings. One idea, which appears to have practical possibilities, is the use of a flat liquid-filled bulb and a small hydrostatic gage located between the adjusting screw and bearing.

When sheer goods or goods which require nearly complete penetration of color are being printed, there is a possibility that the rubber-covered cylinder will mark off on the unprinted cloth. To obviate this, a special continuous blanket of Rayotwist-reinforced Neoprene, with bronze guide chains attached to the edge by means of flexible stainless-steel inserts vulcanized into the edge, will be used. This blanket will be run through a washer, scrubber, squeegee, and hot-air drying device so that it will present a clean surface to the back of the fabric.

A set of control buttons, located on the front of the machine, permits the printer to control speed, reverse motion, and width of cloth with a touch of his finger.

Despite the light pressure of the copper rollers on the cylinder, the rollers with their mandrels tend to bend into a slight curve under printing conditions. Obviously, the old method of adding lapping or "packs" to compensate for this curve can no longer be used. However, a crown can be put on the new cylinder by grinding. The required convex curve is obtained by means of a grinder carried on a semi-flexible slide.

Although not an integral part of the new machinery arrangement, it is thought that a stroboscope attachment might be a valuable adjunct as printing speeds continue to increase. This is particularly true where intricate patterns are run. In a laboratory demonstration of the stroboscope on a small multi-colored geometric pattern, imperfections of register were clearly discernible at speeds of over 250 yd. per min.

New Rayon Record Set in 1939

U. S. output and consumption reaches all-time high—Staple fiber spectacular

A NEW ALL-TIME HIGH was set by the production and consumption of rayon yarn in the United States in 1939, according to the *Rayon Organon*, published by the Textile Economics Bureau.

Rayon production totaled 384,200,000 lb. which was 12% greater than the 341,900,000 lb. produced in the hitherto record year of 1937. (See Table I.)

This total rayon production record was made possible by new production highs for both rayon yarn and rayon staple fiber. Filament yarn production in 1939 at 331,200,000 lb. was 29% greater than the output in 1938 and 3% above the previous record high in 1937. The 1939 production of staple fiber at 53,000,000 lb. was 77% greater than the previous record in 1938 and 162% over the 1937 output.

As for the production of yarn by process of manufacture, the viscose plus cuprammonium yarn production at 230,950,000 lb. was 27% above the 181,470,000 lb. produced in 1938, but still slightly below the record high of 239,316,000 lb. in 1937. Acetate yarn production at 100,250,000 lb. exceeded the 1938 output of 76,155,000 lb. by 32% and likewise exceeded the former record made in 1937 by 22%.

DOMESTIC CONSUMPTION of rayon in 1939 also reached a new all-time high with a total of 462,375,000 lb. (362,375,000 lb. of yarn plus 100,000,000 lb. of staple fiber). This total figure com-

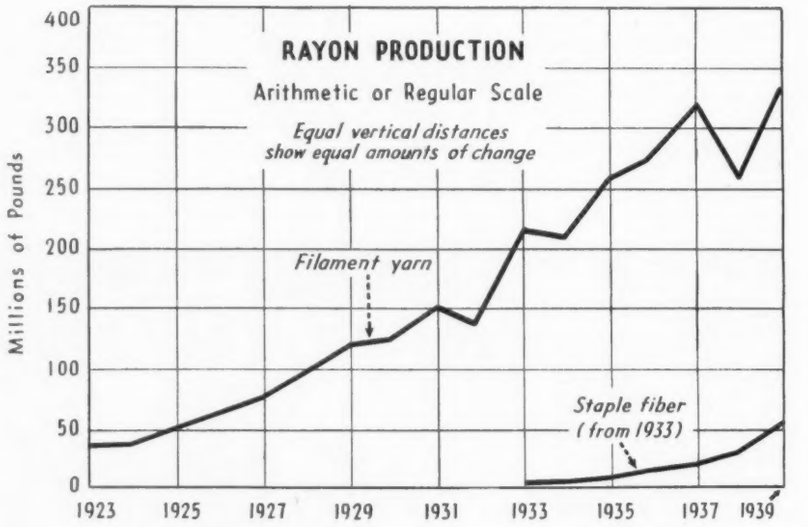


TABLE I—U. S. and World Rayon Production

UNITED STATES RAYON PRODUCTION IN MILLIONS OF POUNDS

	1939	1938	1937	1936	1935	1930
Rayon Filament Yarn	331.2	257.6	321.7	277.6	257.6	127.3
Rayon Staple Fiber	53.0	29.9	20.2	12.3	4.6	0.4
TOTAL	384.2	287.5	341.9	289.9	262.1	127.7

WORLD RAYON PRODUCTION IN MILLIONS OF POUNDS

	1939 (est.)	1938	1937	1936	1935	1930
Rayon Filament Yarn	1,125	990	1,199	1,022	940	451
Rayon Staple Fiber	1,025	958	619	299	140	6
TOTAL	2,150	1,948	1,818	1,321	1,080	457

TABLE II—Distribution of Domestic Rayon Yarn Shipments by Trades

(*Units Are Millions of Pounds and Percent*)

	Hosiery lbs.	%	Other Knit lbs.	%	Broad Woven lbs.	%	Narrow Woven lbs.	%	Miscellaneous lbs.	%	Sub-Total Knit lbs.	%	Sub-Total Woven lbs.	%	Total Shipments lbs.	%
1925	10.7	20	10.5	20	26.1	50	2.9	5	2.6	5	21.2	40	29.0	55	52.8	100
1926	10.3	20	15.0	29	21.2	42	2.2	4	2.6	5	25.3	49	23.4	46	51.3	100
1927	16.7	20	28.9	34	31.5	37	3.3	4	4.6	5	45.6	54	34.8	41	85.0	100
1928	14.7	17	32.9	37	32.5	37	3.2	4	4.7	5	47.6	54	35.7	41	88.0	100
1929	18.8	16	43.7	37	45.4	39	3.1	3	5.4	5	62.5	53	48.5	42	116.4	100
1930	16.5	15	38.0	34	49.5	44	3.0	3	4.6	4	54.5	49	52.5	47	111.6	100
1931	21.1	14	48.7	31	75.6	49	4.0	2	6.2	4	69.8	45	79.6	51	155.6	100
1932	19.0	13	38.0	25	84.6	56	3.9	2	6.3	4	57.0	38	88.5	58	151.8	100
1933	17.0	8	41.3	20	141.3	67	5.5	2	5.9	3	58.3	28	146.8	69	210.9	100
1934	14.1	7	39.9	21	131.3	68	4.8	2	4.6	2	54.0	28	136.1	70	194.7	100
1935	14.7	6	47.9	19	179.5	71	5.2	2	5.4	2	62.6	25	184.7	73	252.7	100
1936	16.3	5	51.0	17	217.0	73	8.2	3	4.9	2	67.3	22	225.2	76	297.3	100
1937	12.6	5	39.4	14	202.2	76	7.2	3	4.8	2	52.0	19	209.4	79	266.2	100
1938	14.2	5	40.9	15	209.0	76	6.0	2	3.7	1	55.1	20	215.0	79	273.8	100
1939	17.2	5	53.1	14	278.0	77	7.9	2	6.0	2	70.3	19	285.7	79	362.2	100

TABLE III—U. S. Yarn Production by Denier

CLASSIFICATION OF TOTAL YARN PRODUCTION BY DENIER SIZE IN PERCENT 1928 TO 1939

	1928	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938	1939
Total Fine Deniers (112 denier and fine).....	9.9	11.5	14.2	19.1	26.0	26.4	26.8	21.0	24.3	25.5	32.2	33.1
Total Medium Deniers (113–162 denier).....	74.0	72.9	71.7	69.0	64.8	62.8	59.5	62.1	61.7	60.4	53.9	52.4
Total Coarse Deniers (163 denier and coarser).....	16.1	15.6	14.1	11.9	9.2	10.8	13.7	16.9	14.0	14.1	13.9	14.5
Total All Deniers.....	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

pares with the old record of 327,120,000 lb. consumed in 1938, or an increase of 41%.

Filament yarn consumption in 1939 at 362,375,000 lb. exceeded the 1938 consumption by 32% and the previous all-time high in 1936 by 22%. Both the viscose-cupra and the acetate branches of the yarn industry reached new high shipment levels.

The 1939 consumption of staple fiber at 100,000,000 lb. was 88% above the 1938 consumption, which was the former record. It should be noted that the 1939 staple fiber consumption figure is made up of 53,000,000 lb. of domesticly-produced staple plus approximately 47,000,000 lb. of staple fiber imports. (See Table IV).

Rayon yarn consumption by principal trades during 1939 showed no especially significant changes percentagewise as compared with the previous year. Poundagewise, of course, the consumption of yarn by each major outlet increased substantially over 1938. (See Table II).

YARN PRODUCTION BY DENIER during 1939 trended toward the finer yarns. Combining viscose-cupra data with the partially estimated acetate yarn production, Table III was derived. These data also show that the increase in fine denier yarn production has been almost entirely at the expense of the medium deniers, the production of the coarse deniers remaining relatively constant.

WORLD RAYON PRODUCTION estimates for 1939 together with corresponding figures for selected previous years are shown in Table I. These 1939 data are of course preliminary.

It is estimated that in 1939 the United States produced approximately 29% of the world's rayon filament yarn and about 5% of the world's staple fiber output. In accounting for this large share of the world's filament yarn output, the United States retained its place as the world's leading rayon yarn producing country, its production exceeding that of its nearest competitor, Japan, by nearly 45% in 1939. Although showing a large increase over 1938, the 1939 United States rayon staple fiber production, on the other hand, amounted to only 5% of the world total, as noted.

Some of the other outstanding features of the 1939 world rayon production situation were the substantial gains made by Germany and Italy in the production of both yarn and staple fiber, and the substantial decrease in the Japanese output of rayon staple fiber.

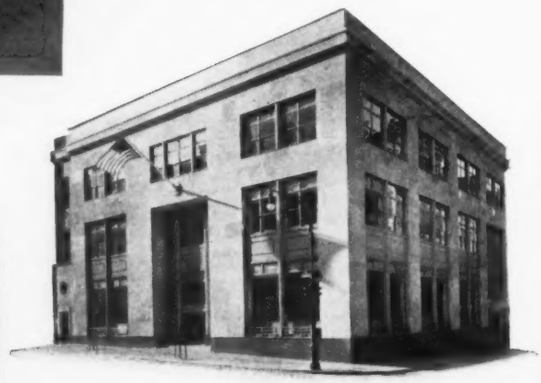
TABLE IV—Basic Annual U. S. Rayon Data (in thousands of pounds; percentages in italics)

Year	RAYON FILAMENT YARN: Domestic Production: Viscose Cupra & Nitro		Acetate		Total 100%	Total Domestic Shipments	Imports	Exports	Domestic Consumption	RAYON STAPLE FIBER: Domestic Production		Imports		Available 100%
1911	363	*100*	.....	....	363	315	1,800		2,115					
1912	1,111	*100*	.....	....	1,111	1,117	1,750		2,867					
1913	1,816	*100*	.....	....	1,816	1,566	2,430		3,996					
1914	2,422	*100*	.....	....	2,422	2,444	2,740		5,184					
1915	3,885	*100*	.....	....	3,885	4,107	2,450		6,557					
1916	5,778	*100*	.....	....	5,778	5,741	900		6,641					
1917	6,544	*100*	.....	....	6,544	6,429	370		6,799					
1918	5,846	*100*	.....	....	5,846	5,827	180		6,007					
1919	8,228	*99.4*	50	*0.6*	8,278	8,219	1,072		9,291					
1920	10,005	*98.8*	120	*1.2*	10,125	7,238	1,480		8,718					
1921	14,866	*99.2*	120	*0.8*	14,986	16,475	3,276		19,751					
1922	23,947	*99.5*	120	*0.5*	24,067	22,631	2,116		24,747					
1923	34,839	*99.7*	120	*0.3*	34,959	29,529	3,029		32,558					
1924	36,208	*99.7*	120	*0.3*	36,328	40,289	1,954		42,243					
1925	49,429	*96.8*	1,620	*3.2*	51,049	52,836	5,441	148	58,277					
1926	60,073	*95.8*	2,620	*4.2*	62,693	51,284	9,345	400	60,629					
1927	70,408	*93.2*	5,147	*6.8*	75,555	85,021	15,034	401	100,055					
1928	91,232	*93.8*	6,000	*6.2*	97,232	87,984	12,144	196	100,128	165	*45.2*	200	*54.8*	365
1929	112,954	*93.0*	8,445	*7.0*	121,399	116,410	15,055	223	131,465	500	*25.8*	1,436	*74.2*	1,936
1930	117,543	*92.3*	9,790	*7.7*	127,333	111,627	6,340	345	117,967	350	*40.4*	518	*59.6*	868
1931	135,249	*89.6*	15,630	*10.4*	150,879	155,556	1,804	314	157,360	880	*55.2*	715	*44.8*	1,595
1932	116,379	*86.4*	18,291	*13.6*	134,670	151,838	197	653	152,035	1,100	*33.4*	2,196	*66.6*	3,296
1933	172,402	*80.8*	41,096	*19.2*	213,498	210,949	934	1,110	211,883	2,100	*38.8*	3,320	*61.2*	5,420
1934	170,307	*81.8*	38,014	*18.2*	208,321	194,694	77	2,509	194,771	2,200	*90.9*	221	*9.1*	2,421
1935	202,010	*78.4*	55,547	*21.6*	257,557	252,650	26	2,219	252,676	4,600	*75.8*	1,461	*24.2*	6,061
1936	214,926	*77.4*	62,712	*22.6*	277,638	297,347	255	1,813	297,602	12,300	*49.2*	12,721	*50.8*	25,021
1937	239,316	*74.4*	82,365	*25.6*	321,681	266,202	872	1,397	267,074	20,244	*49.6*	20,614	*50.4*	40,858
1938	181,470	*70.4*	76,155	*29.6*	257,625	273,800	262	1,456	274,062	29,861	*56.2*	23,197	*43.8*	53,058
1939	230,950	*69.7*	100,250	*30.3*	331,200	362,200	175	1,875	362,375	53,000	*53.0*	47,000	*47.0*	100,000

United States production and imports of rayon staple fiber before 1928 were either non-existent or nominal.

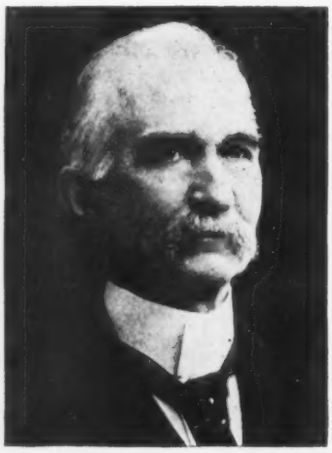
Deering-Milliken in New Offices

Celebrates 75th birthday by house warming attended by 3000 dry goods men



Deering, Milliken & Co.'s new building at the corner of Church and Leonard Sts., New York, at right. Above, interior view on main floor looking toward entrance. This is the general sales department

Seth M. Milliken, at right, one of the founders of Deering, Milliken & Co.



IT IS DOUBTFUL whether there was ever so large and so complete a gathering of merchants from the dry goods trade as was found late on the afternoon of Jan. 24 under the roof of Deering, Milliken & Co.'s new building at the corner of Church and Leonard Sts., New York. Nearly 3,000 members of the trade responded to the invitation to attend the official opening of the new building and to join at the same time in the celebration of the firm's 75th anniversary.

The chief executives of most of the dry goods houses in the Worth St. district, as well as leading figures from the rayon yarn, the finishing and the converting trades, were all there. Deering-Milliken had its men in from western and southern branch offices, and it also entertained officials from most of the mills which it represents. Throughout this enormous gathering, there was a general attitude of friendly interest and congratulation that this 75-year-old commission house had decided to drive its roots even deeper into the long-established dry goods district by erecting its own building, of which it is the sole occupant.

The three-story building, of limestone with granite base, was designed by Walker & Gillette, architects. The first floor and mezzanine are devoted to the sales department, the second floor contains executive offices, private offices and clerical space, and the third floor is devoted to inspecting, sorting and packing merchandise, with testing laboratory, conference room, and kitchenette lunchroom. Basement is used for storage, air-conditioning equipment, etc. Fluorescent lighting is used throughout. The latest type telephone equipment has been installed.

The firm has gone a long way since the day in 1865 when William Deering and Seth M. Milliken set up a dry goods jobbing firm under the style Deering, Milliken & Co. in Portland, Maine. The firm's early growth was rapid, and only two years after founding, it opened a New York office on Franklin St. It early assumed the function of mill selling agents and discarded its jobbing functions. Its first mill clients were several New England woolen mills, and in 1874, with the beginning of its association with Lockwood Co., Waterville, Maine, it first entered the cotton goods market. In 1878 the company moved to 79 Leonard St., where offices have been maintained continuously until now. Early in the '70s William Deering left the firm to form the Deering Harvester Co. in Chicago and Seth M. Milliken became head of the firm. He retired in 1915 and was then succeeded by his son, Gerrish H. Milliken, who is the chief executive today. The firm incorporated in 1922.

Deering, Milliken & Co. were among the pioneers in representing southern mills on the New York market. Their first southern connection was with the Pacolet Mfg. Co.

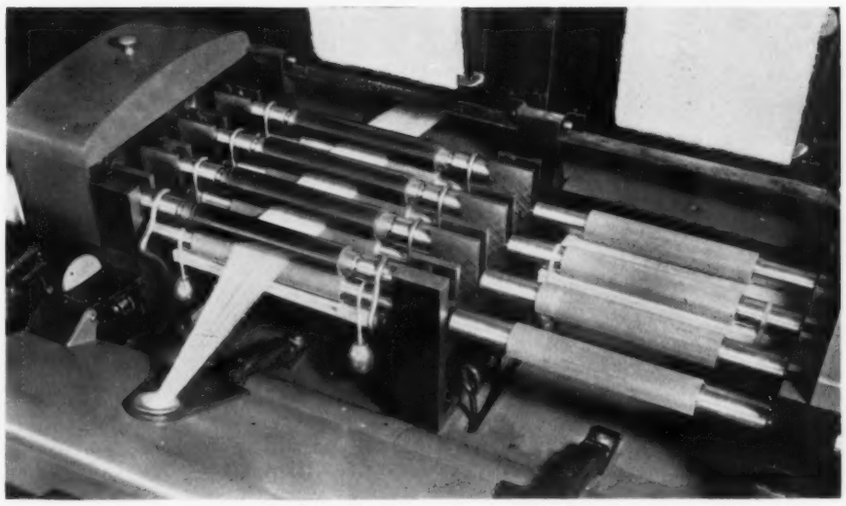
TEXTILE EQUIPMENT NEWS

Rayon Staple Machinery

To handle the longer staples of cut rayon, Whitin Machine Works, Whitinsville, Mass., has developed new drawing frames which incorporate wider roll stands and larger rolls. The larger-diameter rolls are said to be advantageous because they allow better control, and prevent excessive lapping. The rolls, suitable for staples from $1\frac{3}{4}$ to 3 in. in length, are $1\frac{1}{2}$ in. in diameter. Settings over the staple length are $\frac{1}{8}$ in. for the front rolls, $\frac{3}{16}$ in. for the middle rolls, and $\frac{5}{16}$ in. for back rolls. A front-roll speed as high as that for running cotton can be used.

This company has also incorporated larger rolls in its Super-Draft roving frame, for handling rayon staples. Lower spindle speeds are recommended for this frame.

Special long-draft-spinning attachments for rayon staple include large-diameter front steel rolls, roll stands made to handle wide settings, and large-diameter top rolls to prevent lap-ups. Drafts of from 20 to 25 can be used with these attachments.



Large-diameter drawing rolls (Whitin)

Air Stripper for Cotton Cards

Recently announced by Saco-Lowell Shops, 60 Batterymarch St., Boston, is an air stripper for cotton cards, which is said materially to reduce the amount of dust in the atmosphere. Also, with this stripper there is no danger of damaging the card clothing.

The stripping unit consists of a high-speed stripping roll covered with wire which is designed to remove the waste from the card clothing, and to transport it to a point from which it will be carried off by the air stream. The stripping brush never becomes loaded; it acts merely as a carrier for the waste.

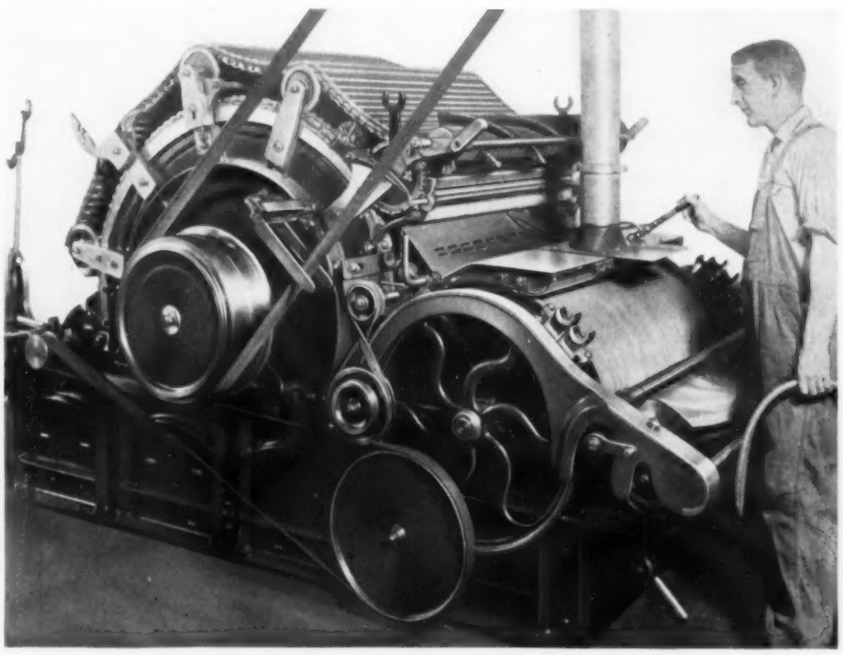
Directly on top of the doffer there is a sheet-steel nozzle which acts as a terminal for the air line. This nozzle extends the whole width of the stripping brush and acts as a cover for the doffer.

The stripping roll is driven by two pulleys connected by a 1-in. belt which remains constantly in position. The driving pulley of this unit receives its motion by means of a band from the regular stripping groove on the loose pulley of the card. This band is the only equipment which must be moved from card to card by the operator.

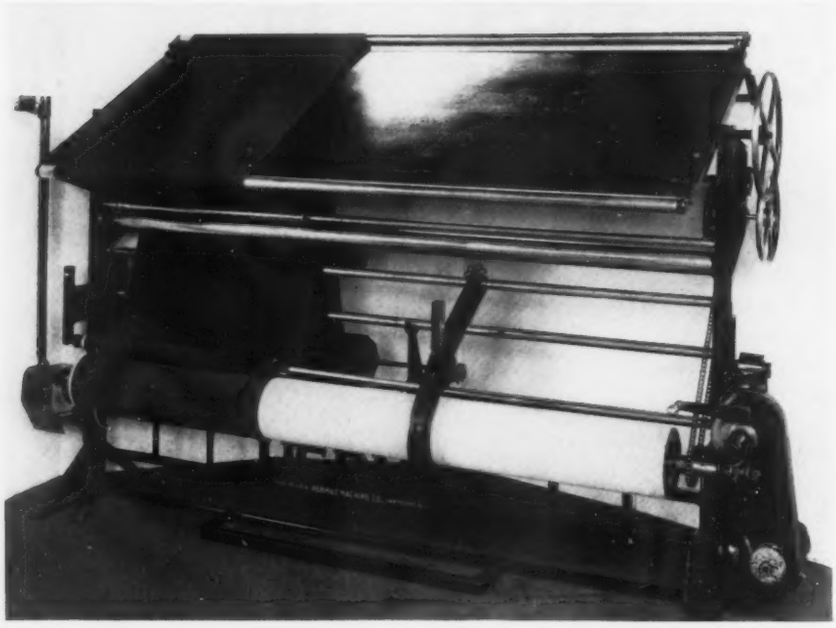
The special condenser is assembled as a unit with a high-speed exhaust fan. This condenser unit can be driven by belt, but preferably by a directly connected motor. A built-in countershaft supplies the drive for the rolls which remove the cotton from the surface of the screen. Dampers, adjustable from the outside, are provided, and hand holes have also been placed so that access to the interior of the condenser is possible without disturbing the settings.

Numbering Machine

American Numbering Machine Co., Atlantic and Shepherd Aves., Brooklyn, N. Y., has announced a new line of machines designed for numbering and marking lot numbers, piece numbers, style numbers, yardage lengths, etc., on textile-mill tags, tickets, labels, etc. The machines are manufactured with



Air stripper (Saco-Lowell)

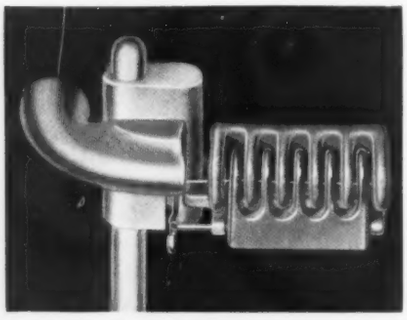


Elastic-web measuring and winding machine (Hermas)

Elastic-Web Measuring and Winding Machine

For handling elastic web and other fabrics with a longitudinal stretch, Hermas Machine Co., Hawthorne, N. J., has brought out a measuring and winding machine, Model GE. It is said to be designed so that it will record accurate measurements and wind a straight roll on paper tubes, with no stretch. Built of welded steel throughout, the machine is equipped with variable-speed drive, surface wind, constant-speed take-up, drop-finger measuring unit, tilting inspecting table which measures 24 in. from front to rear, and a Veeder-Root counter which measures in yards and eighths or meters and tenths. To accommodate take-up bars of any length, the right-hand bearing is adjustable. Thus, when a narrow fabric is being wound, it will run to the left-hand side of the machine and be kept in contact with the measuring unit. This machine, available in any standard width, is driven by a 1/3-hp. motor.

any number of wheels engraved with special characters, letters, fractions and numbers, designed to meet the mill's individual requirements.



Yarn-tension device (Reiner)

Yarn-Tension Device

A yarn tension designed to make possible warping of either fine or coarse yarns at high or low speeds, without resetting, has been announced recently by Robert Reiner, Inc., Weehawken, N. J. Features cited are that the tension can be quickly and easily threaded, that the yarn cannot fly out of the tension, and that constant drag on the yarn is assured. The new tension is designed to be adaptable to creels which are already installed.

Tiger for Pile Fabrics

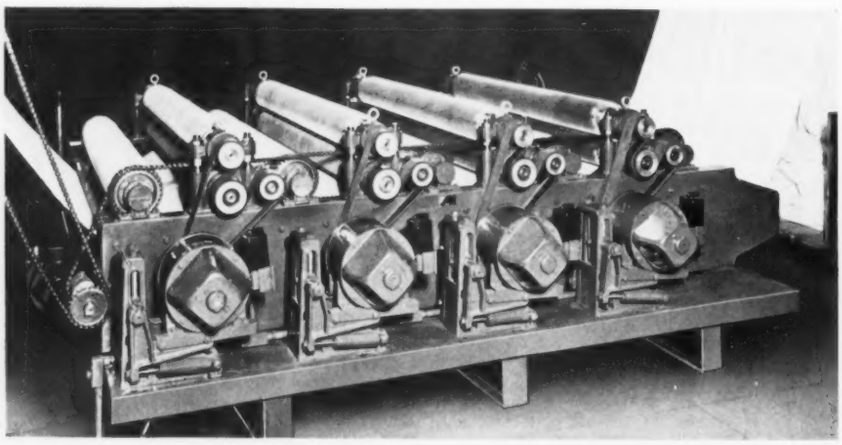
A new design of wet tiger for pile fabrics has been announced by General Machine Co., Paterson, N. J. The machine features solid steel, ball-bearing-mounted carding and cleaning rolls, individually driven by motors mounted on pivoted bases to eliminate vibration. Driven rolls between brushings are powered by a separate variable-speed source through adjustable, slow-moving friction clutches; these serve to reduce tension and insure steady motion of the goods.

Brushing tables are of heavy cast iron. The distance between each table and card roll can be changed by a single micrometer adjustment; a separate adjustment is provided for lining up table and roll. All such changes can be made from the outside of the machine, while it is in operation. The tiger can be obtained with any number of brushing sections and, when desired, with a vacuum extractor on the entering end. Among advantages cited for the machine are that formation of objectionable cross marks, often visible in plain goods after tigering, has been prevented.

Card for Rayon Staple

A 60-in. card developed especially for use with rayon staple fiber has been announced by Davis & Furber Machine Co., North Andover, Mass. Advantages cited for the machine are large production, and better carding with fewer neps. It is also stated that the new card makes possible elimination of some combing on worsted-type yarns.

The 60 x 60-in. single cylinder of the card is similar to that of woolen cards made by this manufacturer. However, the new card has fewer workers and strippers than on the standard card. Another difference is that the cylinder, strippers, and doffer are covered with garnett wire or metallic card clothing. Tumblers, workers, and fancy are cov-



Tiger for pile fabric (General)

ered with card clothing. The card is made with balling head, can coiler, or a series of can coilers, as desired. For woolen-type yarns, it can deliver to a tape condenser.

Warmth Tester

United States Testing Co., Hoboken, N. J., announces it has completed building of a machine for measuring warmth qualities of materials. The machine is of the guarded hot-plate type. It has a duct system equipped with a blower, refrigerating unit, and heating coils, together with suitable control units. It is stated that a wide variety of weather conditions can be created and accurately controlled. The various parts of the tester can be adjusted to give a condition, above the upper exposed surface of the sample, that is representative of those to which it will be subjected in normal use.

Warmth tester (U. S. Testing)

Magnetic Separator

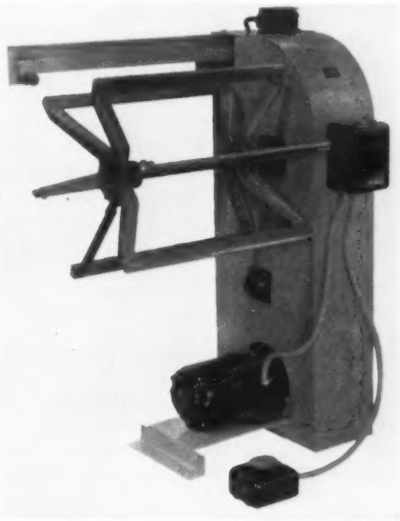
For removing miscellaneous bits of iron from cotton, jute, burlap, and similar materials, before they are passed to garnetting machines or cards, a high-intensity magnet has been developed by Dings Magnetic Separator Co., Milwaukee, Wis. The magnet is usually installed immediately after the first picker, but can be placed after the second picker or willow. In any case, it is installed in such a position that it will remove metal which might damage cylinder teeth, or present a fire hazard due to the possibility of sparking.

The construction of the face of the magnet is said to be such that, in addition to removing iron, it deflects from the air stream a considerable amount of non-metallic extraneous material, which drops to the bottom of the duct work. At the end of a run, electric current going to the magnet is interrupted and metal which has been held by it also drops to the bottom of the duct work. From this point, both metallic and non-metallic materials can easily be removed.

Magnetic separator (Dings)

Skein Reeling Machine

Brought out recently by Fidelity Machine Co., 3908 Frankford Ave., Philadelphia, is a skein-reeling machine which comprises a self-contained unit with individual motor control. The 1/8-hp. brakemotor can be run from the light circuit. The drive mechanism is totally inclosed to insure safety and to avoid dust collection. Applied to the top of the machine is a yardage counter which can be set for any predetermined skein yardage, to stop the machine automatically when this yardage has been reached. With the brakemotor the machine stops instantly. The motor is of the quick-starting type and drives through V-belts. The reel holds five skeins and one of the reel spokes is collapsible to permit quick removal of all skeins.

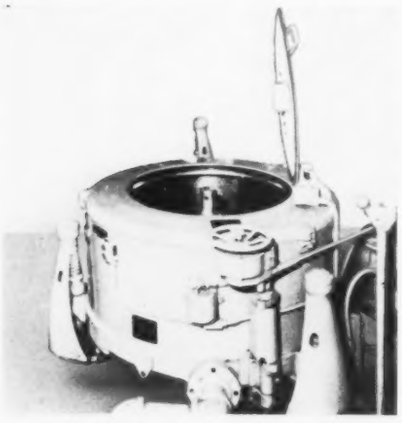


Skein reeling machine (Fidelity)

The machine occupies a floor space of 16½x32-in. and has an over-all height of 42 in.; the reel shaft is 30 in. above the floor. Two sizes are manufactured, one for skeins up to 60 in. and the other for skeins from 61 to 75 in.

This same company has announced a

bottle bobbin winder with fifteen spindles, which winds bottle bobbin 6 in. in diameter and 21 in. in height. Yarns can be handled directly from skeins or they can be back-wound from cops, cones, or tubes. The machine has a barrel swift for skeins. Packages handled weigh up to 5 lb.



Centrifugal extractor (Fletcher)

Centrifugal Extractor

Introduced recently by Fletcher Works, Inc., Glenwood Ave. and Second St., Philadelphia, is a high-speed Whirlwind centrifugal extractor. In the 40-in. model, speeds of up to 1,200 r.p.m. are obtained; for the 48-in. model, speeds range up to 1,000 r.p.m.

In addition to its high speed, features of the new extractor which are cited include the fact that it has increased stability, loading and unloading are easier, less floor space is required, etc. Capacities for the 40 and 48 in. models are 14 and 21 cu. ft., respectively.

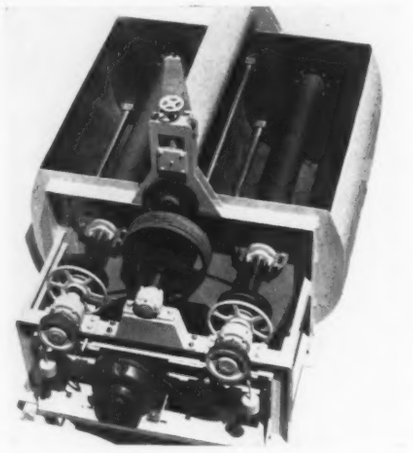
Improved Selvage Harness

Steel Heddle Mfg. Co., 2100 W. Allegheny Ave., Philadelphia, has placed on the market an improved selvage harness. The assembly consists of two metal straps, two U hooks, and two blind heddles with the regular heddles arranged between them.

The selvage harness becomes a part of the regular harness, traveling with it to the drawing-in room and to the loom, thus eliminating unnecessary delays in getting the loom in production. A simple locking device attaches the selvage harness to the loom in such a manner that it cannot work loose; when desired, the lock can be easily and quickly released.

Dyeing and Processing Machine

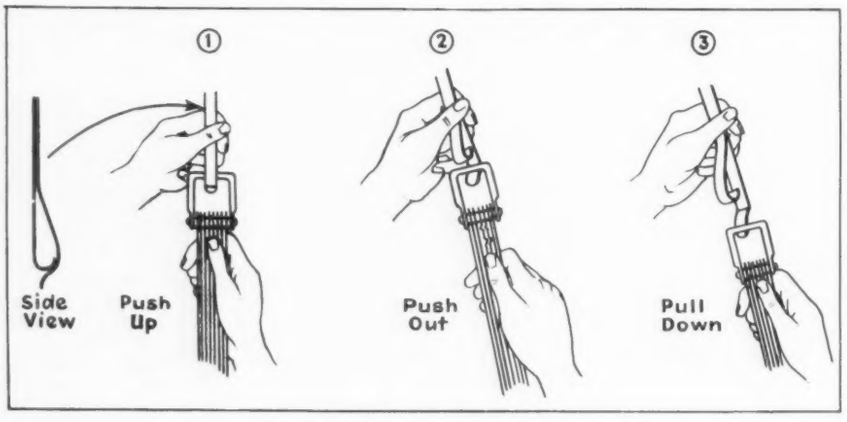
Duo Dyeing Machine Co., Charlotte, N. C., is introducing a jig type piece-goods dyeing and processing machine



Dyeing and processing machine (Duo)

which consists essentially of two separate boxes, with a pair of controlled-pressure squeeze rollers placed over the dividing partition. Cloth is wound upon beams that are placed within the boxes in such a position that the roll of goods can be batched totally submerged, semi-submerged, or completely out of the liquor. The machine is motor driven, the squeeze rollers pull the cloth from box to box with controlled tension at a constant speed of 100 yd. per min.

It is stated that the constant speed, the action of the squeeze rolls on each run, and the controlled tension make it possible to run cloth more evenly, improve dye penetration, and practically eliminate selvage difficulties. Production is said to be more than doubled, with improved quality of work and lower operating costs. The machine is designed to be used for desizing, scouring, bleaching, washing, soaping, and stripping, in addition to dyeing.



Operation of selvage harness (Steel Heddle)

Useful Accessories for Textile Mills

Adjusting Clamp. Mixing Equipment Co., Rochester, N. Y., has announced a new hand clamp for its mixers which makes it possible, merely by turning a handwheel, to lock the mixer in position for any selected mixing action.

Roller Chain. Morse Chain Co., Ithaca, N. Y., recently introduced a channel-lubricated roller chain; the design, it is said, makes possible complete interchangeability with other standard roller chains while retaining self-lubricating features of Morse chains.

Delayed-Action Switches. The Lamp Dept. of General Electric Co., Nela Park, Cleveland, has brought out a line of delayed-action mercury switches. The switches are available in both circuit-opening and circuit-closing types; time-delay intervals for the former vary from ½ to 15 sec.; the latter, ½ to 10 sec.

Bearing Unit. Stephens-Adamson Mfg. Co., Aurora, Ill., has added self-aligning, ball-bearing cartridge units to its bearing line; the new bearings are said to be effectively sealed from all foreign materials in the atmosphere, and to retain lubricant, regardless of any misalignment of the shaft.

Meters. Bailey Meter Co., 1050 Ivanhoe Rd., Cleveland, has restyled its line of meters for power plants and industrial processes. Improvements incorporated include a new piano-type hinged door, which closes on a synthetic sponge gasket designed to give complete protection against infiltration of moisture and dust.

Photoelectric Relay. Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has announced a compact photoelectric relay for use in counting, sorting, weighing, measuring, signalling, and similar operations. Contacts of the device are rated at 10 amp. on 115-volt a-c. circuits.

Oiling Fittings. Alemite Division, Stewart-Warner Corp., 1852 Diversey Parkway, Chicago, is introducing a line of fittings and bushings which are

so constructed that they signal an operative when a bearing is sufficiently lubricated. The fittings are installed directly into the bearings.

Variable-Speed Transmission. Link-Belt Co., 307 N. Michigan Ave., Chicago, has announced a vernier-control for its variable-speed transmission equipment, for installations in which extremely fine control of speed changes is required. Particular applications for which the control is recommended include synchronizing the speeds of two machines, justifying for shrinkage and expansion of fabrics, controlling feedings and weighings, obtaining exact register, etc.

New Dyes and Chemicals

General Dyes

General Dyestuff Corp. announces the following new product: Benzoform Violet BB, a direct dye which, when after treated with formaldehyde and acetic acid, produces on cotton and rayon bluish shades of violet; dyeings possess fairly good to good fastness to washing and can be discharged.

DuPont Chrome Color

E. I. du Pont de Nemours & Co., Inc., has announced the following new product: Pontachrome Orange RL, a chrome color yielding shades of very good fastness to light; dyeings are also fast to carbonizing; steaming, perspiration, washing, and fulling have little, if any, effect on the shade.

Detergent and Wetting Agent

A synthetic organic chemical characterized by marked detergent and wetting properties has been announced by Chemical Marketing Co., Inc., 10 East 40th St., New York. This product, known as Lamepon, is a water-soluble, viscous, oily liquid, produced in several modifications or grades of almost neutral reaction. Although commercial production of Lamepon in this country is new, the material has been used in Europe for some years. Applications for this product in the textile industry include: scouring of wool, spun rayon, and other fibers in form of raw stock, yarns, and fabrics; fulling; soaping dyed or printed cotton and rayon fabrics; as a leveling and retarding agent in bleaching and dyeing; and in preparing staple oil emulsions.

When Lamepon is employed as a detergent, it may be used together with alkalis, silicates, phosphates, etc., to supplement and increase their cleansing effect. It not only aids in wetting and emulsifies greases and waxes, but also disperses lime soaps. In bleaching with chlorine or peroxide, the retarding action has a special mechanism. The free chlorine, for example, first forms a chemical union with Lamepon and is then released by the latter on contact with the fiber, the Lamepon returning to its original condition. This is said to protect the fiber from uncontrolled attack and to assure uniform contact between the bleaching agent and the fiber.

Chemically Lamepon is a condensation product of protein derivatives and fatty acids which are united into a definite stable compound having no free fatty acids or soap. Its composition, as well as the fact that it is not sulphonated, distinguishes it from other types of wetting agents and detergents.

Lamepon is staple to heat and most chemicals, but is not recommended for use in highly acid solutions. It has no substantivity, and rinses freely without leaving a residual film. One of the major advantages cited for Lamepon is that as it has a sparing effect on wool, rayon, cotton, and other fibers, it acts without inducing brittleness or dullness.

New Publications

Romance Woven into Weaving History

THE STORY OF WEAVING, by L. Lamprey; Frederick A. Stokes Co., New York; $2.00.

This all-inclusive story of the history of fabrics and methods of making and weaving them is written in a simple manner, ostensibly for the younger generation. But it is an extremely interesting book for the adult, also.

The author has covered the territory thoroughly and well, and cites so many instances in legend, history and the classics which are tied up with the names of clothes, the names of fabrics, and reasons for various styles that the reader—young or old—must be charmed with L. Lamprey's method of telling a staid story in a romantic way.

The importance of the old-time guild is stressed, the growth of unions is traced, and the evolution of the textile industry from a handicraft to the great business of today is given in sufficient detail to allow the reader a clear and concise picture of the major developments in the art of weaving from the earliest basket-making of the cave man to the intricate machinery operations of today.

Textbook on Opening and Picking

COTTON OPENING AND PICKING, by Gilbert R. Merrill; published by the author at 364 Varnum Ave., Lowell, Mass.; $1.75.

This is a revised edition of Professor Merrill's book, originally published in 1933, covering the first two spinning-mill departments. The present volume contains about 50% more material than the first edition, since it has been enlarged to include developments which have taken place since the earlier edition. In addition, a table of contents and a list of illustrations have been added for the benefit of those who wish to use the book for reference work, rather than as a text.

The manuscript was prepared originally for use in the classes at Lowell Textile Institute; hence, it contains considerable elementary detail. On the other hand, there are many parts which will prove of interest and assistance to experienced textile men.

The book contains 54 clear diagrams of the various machines discussed.

Eleven Points of Public Policy

PUBLIC POLICY, by C. J. Friedrich and Edward S. Mason, Harvard University Press, Cambridge, Mass.; $3.50.

This is the yearbook of the graduate School of Public Administration, Harvard University, and consists of a series of papers on several subjects of great import today. The relative interest and importance of each of the eleven subjects necessarily depend upon the reader and the subject in which he is most interested. But the thought-provoking merits and excellent handling of each subject are on a par.

To those in the textile industry we particularly recommend the chapters on Price Policies and Full Employment; Industrial Markets and Public Policy; and A Study of Labor Market Control. These three subjects cover points which are before textile execu-

tives every day. Their study should greatly help executives to have a better understanding of the reasons for certain existing conditions in their industry, and may inspire them to formulate policies in their own companies which would alleviate some of their troubles, both present and future.

Again, the Cotton Year Book

Cotton Year Book for 1939; New York Cotton Exchange; prepared under direction of Alston H. Garside.

This is the twelfth Cotton Year Book issued by the New York Cotton Exchange. It contains all the statistical series given in the eleventh year book extended to include the 1938-39 season.

World production of cotton, 1938-39, was roughly 25% less than in the previous season, one of the biggest decreases from one season to the next on record, according to statistics in the book. World production dropped from 36,784,000 to 27,407,000 bales, a decrease of 9,377,000 bales. The greater portion of this decrease occurred in the United States. World consumption, 1938-39, totaled 28,518,000 bales, compared with 27,746,000 in the previous season, an increase of 772,000 bales. World carryover of cotton at end of 1938-39 season was 21,462,000 bales, compared with 22,639,000 at the end of the previous season.

Cotton Carder's Handbook

Saco-Lowell Handbook, Vol. 2 — Carding; Saco-Lowell Shops, Boston; for limited distribution.

This book deals with all phases of cotton carding on Saco-Lowell cards, is well illustrated, and contains useful engineering data. Its attention to the minute details of carding and its many valuable hints make it extremely useful to experienced carders and second hands. Typical subjects discussed and illustrated are fundamental requirements of good carding, essentials of a good lap, sliver graphs, evaluation of card slivers, operation of the card, common defects in carding, card production guide, operating speeds, draft waste, care of various parts, lubrication, auxiliary equipment, fire precautions, and card-adjustment chart.

News of Suppliers

A. B. Carter, Inc., Gastonia, N. C., has named A. Dewey Carter as president and treasurer, succeeding his father, the late A. B. Carter; Ed L. Ramsey has been elected vice-president and he continues as manager of production; E. Hanes Gregg, formerly secretary, is now secretary and assistant treasurer. Promotions and additions to the sales staff associated with Carter Traveler Co. and Mill Devices Co. (two A. B. Carter, Inc., divisions) follow: W. A. Hunt, salesman in Georgia and adjoining States, will also have charge of sales promotion and supervision over all the southern States, working from his present address in La Grange, Ga.; T. B. Hunt, lately a mill superintendent, will cover South Carolina; Harry E. Beck will cover North Carolina, Virginia, and part of Tennessee; C. H. Herrick located in Providence, R. I., covers New England and Canada; Russell A. Singleton will sell in Texas, Arkansas and Oklahoma.

Emmons Loom Harness Co., Lawrence, Mass., and Charlotte, N. C., has appointed Clifton E. Watson as southern sales manager with headquarters at the company's plant and warehouse in Charlotte, N. C. Mr. Watson has been for 17 years vice-president and general manager of Watson & Williams Mfg. Co., Millbury, Mass. Emmons has appointed Albert Breen as sales representative in Michigan, Indiana, Illinois, Ohio, Wisconsin, Minnesota, Missouri, Iowa and Kentucky. His address is 80 East Jackson Boulevard, Chicago, Ill. Emmons is now represented in Argentina and Uruguay by Sr. Roberto Zander of Buenos Aires, who is already handling sales in that district for a number of prominent textile manufacturers. W. S. Taylor is now in charge of Emmons' New York office at 171 Madison Avenue. Mr. Taylor will handle the entire line, and will represent Emmons in Pennsylvania, New Jersey, and part of New York and Connecticut.

Steel Heddle Mfg. Co., Philadelphia, has transferred Stephen R. Moore, who has been covering Philadelphia, New York and Central territory, to the New England headquarters at 44 Franklin Street, Providence, R. I. He succeeds the late John H. Hill, and will cover New England with G. H. Hill.

Scott & Williams, Inc., Laconia, N. H., have named Robert F. Herrick of Boston, chairman of the board, as president of the company, filling the vacancy caused by the death of Walter L. Toy. Harry J. Kelley, treasurer, will be resident manager at the plant.

Davis & Furber Machine Co., North Andover, Mass., has completed the installation of a complete woolen picking, carding, spinning and warp dressing unit in the Textile School of North Carolina State College, Raleigh. Davis & Furber appointed L. E. Bussiere as advisor to mills on woolen spinning. Mr. Bussiere has been for the last seven years, overseer of spinning at Webster (Mass.) Mills of American Woolen Co.

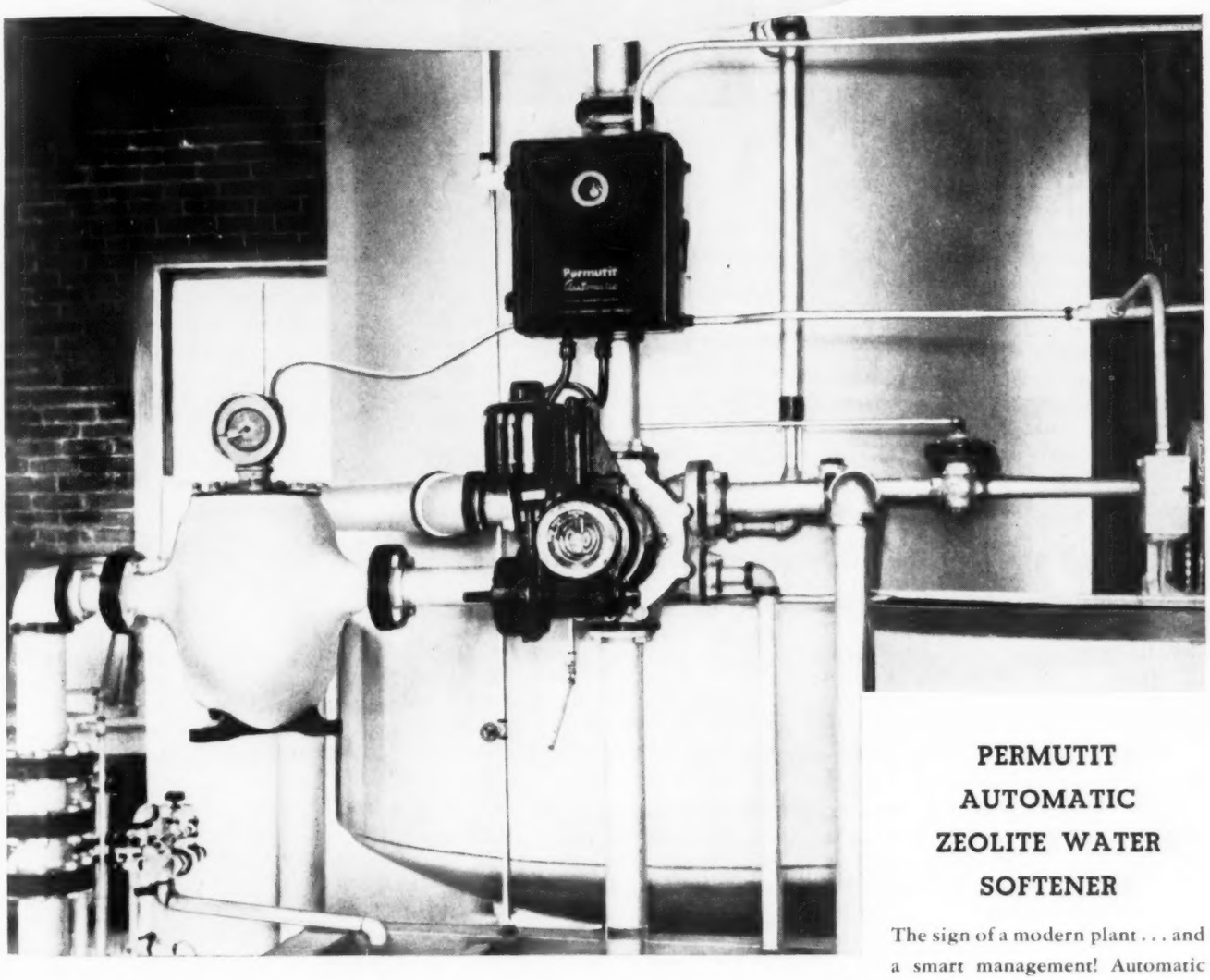
J. E. Sirrine & Co., engineers, Greenville, S. C., have added to their staff Major D. G. Moon, engineering consultant to the paper industry, and director of the 1939 Southern Paper Festival in Savannah, Ga.

Crompton & Knowles Loom Works, Worcester, Mass., will begin construction immediately of a $35,000 addition, which will add 15,000 sq.ft. of floor space to the present forge shop.

Saco-Lowell Shops, Biddeford, Me., has presented its foundry division with a framed certificate of appreciation recognizing its record of 400,000 man-hours of operation without a lost-time accident. In 1937 there were 47 lost-time accidents; in 1939 only 3. Saco-

Joseph T. Ryerson & Son, Inc., has completed the above modern all-steel building at its Chicago plant, which is already the largest steel service plant in the world. The new building, 75x555 ft., will increase the total floor space to over 650,000 sq.ft.

Modernizing? Remember Permutit is WATER CONDITIONING HEADQUARTERS



PERMUTIT PAYS FOR ITSELF IN SAVINGS . . . on Detergents, Dyes

Uniform water . . . soft, clear, iron-free . . . is today's number one necessity for textile quality. Plant after plant has found that Permutit softened water pays for itself in savings on detergents and dyes. Cuts down on "seconds." Guards against streaky off-color dye lots. Improves handle of fabrics.

See Permutit before you modernize. Permutit's water analysis laboratories and coast-to-coast engineering staff will help you select the proper equipment. Write for information on Permutit equipment for removal of turbidity, iron, color, algae; Permutit boiler feedwater equipment; Permutit Electro-Chemical Feeds. Address The Permutit Company, Dept. B, 330 West 42nd St., New York.

PERMUTIT AUTOMATIC ZEOLITE WATER SOFTENER

The sign of a modern plant . . . and a smart management! Automatic protection for you against sticky hard-water soap curds. And continuous automatic operation saves 20% or more on salt over old-style hand-operated softeners.

PERMUTIT
WATER CONDITIONING *Headquarters*

Lowell's sales for fiscal year ended Nov. 30, 1939 increased 24% over 1938 but were 32% under 1937. Net profit for the recent period was $335,674 against $56,938 the previous year.

Tenth Packaging Exposition will be held March 26 to 29 at Hotel Astor, New York. The ninth annual competition for the Irwin D. Wolf awards will be held at that time.

Synthetic Organic Chemical Manufacturers Association, New York, at its recent annual meeting relected as its president, August Merz of Calco Chemical Co., Bound Brook, N. J.

Arnold, Hoffman & Co., Providence, R. I., has appointed Iver W. Fallstrom as director of development and application of various resins, permanent finishes, substantive softeners, etc., as well as to render technical service to the textile industry. He has been connected with textile resins development for Hercules Powder Co. for the last three years. Prior to this he was for five years connected with Sayles Finishing Plants, Inc., and for five years was chief chemist for Aspinook Co.

Atwood Machine Co., Stonington, Conn., has accepted the resignation of A. L. Lewis, formerly vice-president of the company.

American Management Association, New York, has elected William L. Batt as chairman of the board. Mr. Batt is president of SKF Industries, Inc., and an international leader in management movements.

National Oil Products Co., Harrison, N. J., has announced the resignation of John H. Barton as president, after an association of 20 years with the company. He became president in 1938. His successor will be elected March 4.

American Chain & Cable Co., New York, announces that C. N. Johns, vice-president, has been placed in charge of operations succeeding C. G. Williams, resigned. Mr. Johns will supervise the company's 14 plants; he has lately been manager of the Page Steel & Wire Division. George C. Moon, vice-president, has been appointed general manager of the company's sales, succeeding William D. Kirkpatrick, who has been elected vice-president of the company and will continue as general manager of sales of American Chain Division.

Trabon Engineering Corp., Cleveland, Ohio, has appointed R. L. Harter as chief engineer. Mr. Harter has specialized in development of lubricating equipment. Trabon has appointed Edward I. Pfaff as sales manager. Both

Franklin H. Fowler joins Tolhurst

Mr. Harter and Mr. Pfaff have been associated with Alemite Division of Stewart-Warner Corp.

Lubriplate Division of Fisk Bros. Refining Co., Newark, N. J., has appointed J. A. Jepson as district sales engineer at Atlanta, Ga. Mr. Jepson resigned from Atlanta sales force of Link-Belt Co. to accept this assignment.

Stewart-Warner Corp., Chicago, has announced that T. T. Sullivan has resigned as secretary-treasurer because of his health, but continues as vice-president and a director. E. H. Farrell becomes treasurer, and Lynn A. Williams, Jr., secretary.

Foster D. Snell, Inc., Brooklyn, N. Y., has designed a laboratory set-up for field work which is carried in a case measuring 24 x 19 x 8 inches and weighing 45 lb.

Precision Bearings, Inc., Los Angeles, Calif., have elected Harold Swanton as vice-president, succeeding Norman Bell, resigned.

Ciba Co., Inc., has transferred H. B. Malone, Jr., from its New York office to its Charlotte, N. C., office.

Diamond Alkali Co., Pittsburgh, Pa., will hereafter maintain warehouse stocks of Diamond alkalies at Charlotte, N. C., with A. B. Kuhn, Jr., in charge.

Oakite Products, Inc., New York, has appointed Dr. A. Lloyd Taylor to its technical staff. Having resigned as director of the Department of Chemistry of Pease Laboratories, New York, with which he had been associated for the last six years, he will concentrate primarily on chemical research and development of cleaning materials for production and related cleaning operations of major industries. He will devote part of his time to technical field service.

Tolhurst Centrifugal Division, American Machine & Metals, Inc., Moline, Ill., has appointed Franklin H. Fowler, recently president and operating head of Foote Bros. Gear & Machine Corp., Chicago, as assistant to the president and executive head of operations.

DeVilbiss Co., Toledo, Ohio, has announced the schedule of their one-week training-school classes for the first half of 1940. To be held in the company's Toledo plant, the school is open to industrial painters, master painters, automobile refinishers and all others interested in learning the technique of spray-painting and the use and care of spray-painting equipment.

Arabol Mfg. Co., New York, has appointed L. R. Unruh a member of its southern sales staff for Alabama, South Carolina, Georgia, Tennessee, Mississippi and Louisiana. He will continue to maintain headquarters in Charlotte, N. C.

Philadelphia Drying Machinery Co., has removed its Boston office to 441 Stuart Street. Richard P. Hawkins is in charge.

Yarn Firm Name Changed

Stockholders of Waterman, Currier & Co., Inc., have changed the name of the corporation to Currier & Co., Inc. The company will continue to sell the cotton yarn products of the Avondale Mills and Cowikee Mills, of Alabama; the Fitchburg Yarn Co. and Watatic Spinning Mills, of Fitchburg, Mass., together with the sales yarn production of Nashua (N. H.) Mfg. Co. The New York office will be in charge of H. A. Currier, president; and the Boston office in charge of R. O. Elliott, vice-president. The Philadelphia, Reading, and Amsterdam, N. Y., offices will be in charge of Samuel E. Fulton, Frank W. Sundberg, and Fred S. Fowler, respectively.

Introducing the Company to You

An excellent example of an employees' booklet is that which the Hygrade Sylvania Corp. of Salem, Mass., issues to its employees. A new edition has just been published. The booklet, entitled "Introducing the Company to You," covers such vital phases as: History of the Company; Employment Policy; Products and Manufacturing Facilities; Safety; Vacations; Manufacturing Policies; Employee Benefits; Employees' Association; Credit Union, etc.

The BATTLE *Against* HIGH COSTS

FOR over 40 years Sonoco has been fighting their keenest competition—*high costs*. . . They have waged this battle with the weapons of scientific research, mechanical ingenuity and mass production. In the face of present day rising costs, they are particularly well equipped to continue the fight with experienced leaders, seasoned troops and the finest equipment.

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EVERYTHING IN *PAPER CARRIERS*

SONOCO PRODUCTS COMPANY

BRANTFORD ONT. | HARTSVILLE S. C. | MYSTIC CONN.

DEPENDABLE SOURCE OF SUPPLY

FREE FOR THE ASKING

Readers interested in literature reviewed on this page may secure copies by writing to Textile World, 330 West 42nd St., New York, giving their company connection, title of item desired, and date of issue in which it was reviewed.

Knitting Machinery. Wildman Mfg. Co. Illustrated folder contains actual sample of fabric knitted on company's Style FBS-S rayon machine; points out machine's dependability, freedom from needle breakage, high yardage per defect, etc.

Ball Bearings. New Departure Division, General Motors Sales Corp. Booklet R-19 is company's 1940 edition of ball-bearing interchangeability tables.

Motors. Reliance Electric & Engineering Co. Catalog sheet 220 contains information on and illustrations of company's explosion-proof d-c. motors for use in hazardous locations.

Oils and Chemicals. Emery Industries, Inc. Illustrated booklet marks company's 100th anniversary and contains descriptive material concerning its textile processing and finishing oils, emulsifying and wetting agents, and acids of various types.

V-Belts. B. F. Goodrich Co. 24-page catalog section on fractional-horsepower V-belt design explains in non-technical language problems of selecting V-belt drives to suit particular applications; included are price, size, horsepower, and other tables.

Instruments. Foxboro Co. Illustrated folder No. DMF 797 describes company's electric transmission instrument for measurement and control between two separated points of conditions involving temperature, pressure, flow, time-motion, liquid level, or other variables.

Wet - Finishing Equipment. James Hunter Machine Co. December, 1939, issue of *Hunter Counselor* contains article discussing the need for textile-mill modernization, and descriptions of company's equipment for piece-dyeing, bleaching, tentering, fulling, and drying.

Microscope Accessories. Bausch & Lomb Optical Co. 30-page Catalog D-184 describes optical systems, objectives, eye pieces, and other accessories for use with company's line of microscopes.

Fire Extinguishers. Pyrene Mfg. Co. Booklet titled "What You Should Know About Fire Extinguishers" contains comparative charts showing various types and giving chemicals employed, recharging, method of operating, range of stream, and other informative data.

Chemicals. E. F. Houghton & Co. December-January issue of *Houghton Line* contains articles on wool and worsted conditioners, hosiery dyeing, and short-center drives.

Chains and Sprockets. Whitney Chain & Mfg. Co. 64-page catalog contains numerous photographs showing company's products in a wide variety of installations; included are descriptive material and tables showing stock sizes, hub and bore dimensions, and other useful information.

Oils. Standard Oil Co. January, 1940, issue of *Esso Oilways* contains, in addition to other information, short items on oil leaks in a woolen mill and rayon-staple spray oil.

Welding Equipment. Lincoln Electric Co. 4-page bulletin No. 308 describes 200-amp. arc welder manufactured by this company; included are photographs showing a number of uses.

Pumps. Pomona Pump Co. Bulletin No. 34 announces pumps equipped with molded plastic jet, said to be durable and not affected by any form of water corrosion.

Conduit. American District Steam Co. Tile conduit for underground steam or hot water lines is described in a 12-page illustrated bulletin No. 35-67B; also included are data on cast-iron conduit and fiberglas insulation.

Bearings. Johnson Bronze Co. Catalog L2 lists standard stock sizes of Ledaloyl self-lubricating bearings available for immediate delivery; included are technical and application data.

Maintenance Handbook. Flexrock Co. 64-page handbook contains considerable data on application of company's resurfacing and other products to a wide variety of maintenance problems in commercial and industrial buildings.

Deepwell Pumps. Worthington Pump & Machinery Corp. Bulletin W-321-M3A, in six pages, describes company's deepwell pumps and contains photographs and diagrams illustrating installation and operation.

Stainless-Clad Steel. Jessop Steel Co. 24-page booklet contains information for buyers and fabricators of stainless equipment on company's stainless-clad steel sheets and plates; includes information on how it is fabricated into finished equipment.

Bearings. Bound Brook Oilless Bearing Co. Catalog sheet describes company's graphited bronze bearings from the viewpoint of application, permissible loads, dimensions and tolerances, and installation.

Casein Products. Casein Co. of America. 48-page catalog contains description of method of manufacture, characteristics, and suggested uses for company's modified casein and caseinate products; textile uses include rayon warp sizing, printing paste thickening, and as finishing material for cotton, silk, and rayon.

Welded Fittings. American Brass Co. Bulletin E-9 contains description and gives roughing-in dimensions and list prices of new line of large size, welded fittings.

Detergents. Warwick Chemical Co. Technical data bulletin covers company's synthetic detergents; gives information of interest to chemists and mill men.

Lighting. Miller Co. Catalog Section 1C describes recently introduced two-light fluorescent fixture for general illumination of industrial areas; featured are lighting efficiency and low cost of fixtures.

Bearing Alloys. Lumen Bearing Co. Data book contains 70 pages dealing with physical and metallurgical properties of latest non-ferrous bearing alloys developed by this company.

Loom Accessories. Emmons Loom Harness Co. Heddles, harness frames, reeds for warpers and looms, and loom pickers are among products described in a recently released 8-page catalog of this company.

Spun Rayon. American Viscose Corp. Booklet titled "Important Facts About Spun Rayon" presents, in non-technical form, data on properties and uses of spun rayon, care which spun rayon fabrics and garments should be given, and points to be stressed in selling spun rayon at retail.

Brine Making. International Salt Co., Inc. Bulletin describes company's Lixate process for making brine; points out savings made possible by use of its equipment, cost of installations, and uses to which the equipment can be put.

Hand Trucks. American Pulley Co. Pressed steel hand trucks of many types, and wheels for industrial trucks, are described in catalog T39.

Compressors. Ingersoll-Rand Co. In booklet 7502-J a new line of industrial compressors and vacuum pumps in sizes of from ¾ to 5 hp. is described and pictured.

Hat Dryer. Proctor & Schwartz, Inc. Automatic drying and conditioning of hats is described in Bulletin No. 45, which includes photographs and diagrams of equipment for the purpose offered by this company.

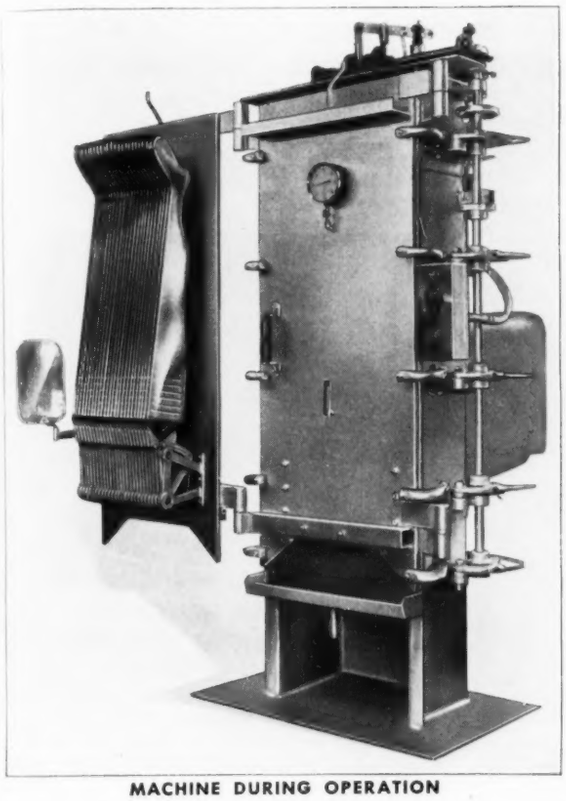
Softeners. Warwick Chemical Co. New bulletin describes properties and uses of two of company's cation-active softeners.

Belting. J. E. Rhoads & Sons. Illustrated folder points out advantages of company's belting in various textile services; included are photographs of installations and examples of savings actually made by textile mills.

Rayon. American Viscose Corp. New edition of booklet titled "Important Facts About Rayon" contains brief answers to questions on manufacture, use, and selling of rayon fabrics and garments.

Unions. Rockwood Sprinkler Co. 4-page pamphlet illustrates and gives information on various types of unions manufactured by this company; data on prices and weights is included.

Announcing



MACHINE DURING OPERATION

the New

PARAMOUNT NYLON PREBOARDING MACHINE

- Answering HOSIERY FINISHING PROBLEMS of TODAY and the FUTURE
- Practically 100% AUTOMATIC
- PREBOARDING or FINAL BOARDING
- Built around EXISTING PATENTS plus NEW and NOVEL COMBINATIONS

AUTOMATIC . . . Two doors each supporting 24 forms insure continuity of operation by one attendant. One group of forms is in the chamber for the steam treatment and subsequent heated air drying, while the other is outside. The attendant, upon closing a door, presses a button and that door is locked steam-tight; steam is then automatically admitted for a predetermined interval; and then heated air is injected to dry the stockings thoroughly. While these automatic steps proceed, the attendant strips and boards the forms outside the chamber. When 24 forms are covered the attendant presses the button which automatically releases the door clamps and the cycle is repeated.

TRIPLE USE . . . This is the only apparatus (1) Providing both steam and heated air to yield a thoroughly dry stocking without waiting, (2) Capable of use with silk hosiery, and (3) For the *final finishing* of nylon stockings.

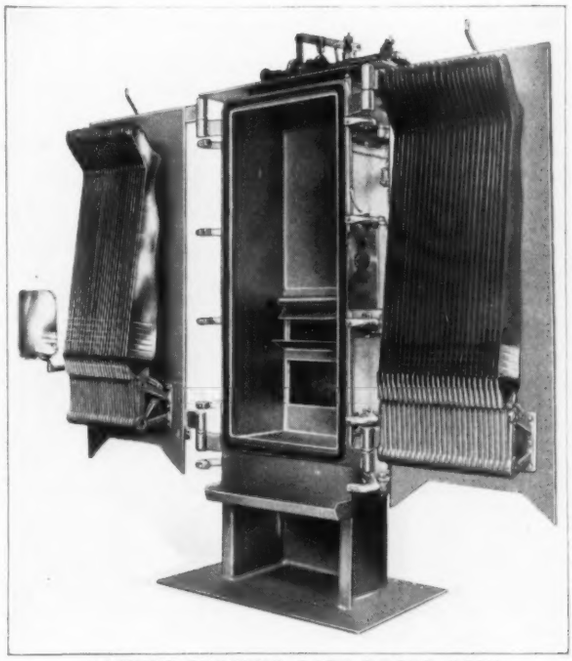
STAINLESS FORM . . . Forms are of highly polished non-snagging *stainless steel* made rigid by an inner rib. After many tests this type was adopted notwithstanding a cost approximately twice that of a form made from a single sheet of metal.

OVAL SHAPE . . . Nylon stockings have greater elasticity than silk, and the *Paramount oval form* definitely assists the stocking in remaining down on the form as the entire area, and not only the edges of the stocking, is under tension.

INTERCHANGEABLE TOE... Further flexibility is afforded by the interchangeable toe form having the Paramount *patented non-snagging edge.*

MULTIPLE STRIPPING . . . The compact form mounting permits stripping three to four forms simultaneously and makes the apparatus the most productive available, as this patented method is exclusively Paramount's.

MINIMUM SPACE... By mounting the forms closely adjacent flatwise, and in a position to occupy the smallest dimensions edgewise, the steam chamber and consequently the entire apparatus is of minimum size.



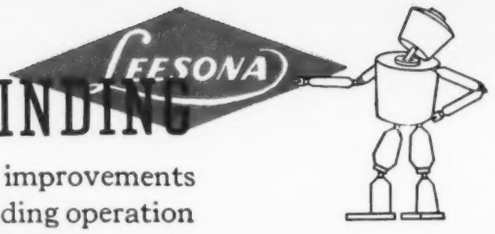
MACHINE SHOWING BOTH DOORS OPEN

PARAMOUNT TEXTILE MACHINERY CO.

538 South Wells Street CHICAGO

THIS IS NO. 19 OF A SERIES ON

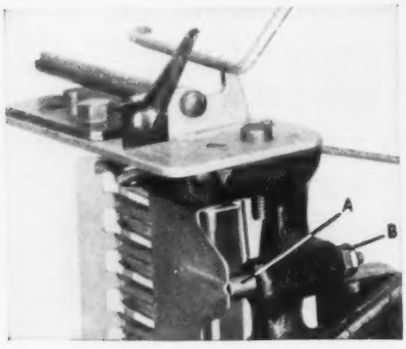
GETTING THE MOST FROM WINDING



Information about winding designed to show improvements in winding equipment and new ideas in the winding operation

ANTI-WEAR TENSION ADJUSTMENT (NO. 50 WINDER)

At the back of the Anti-Wear Tension and set very close to the movable grid, is a plunger (A) known as the Tension Closer which is frequently neglected yet if accurately adjusted will improve winding quality.



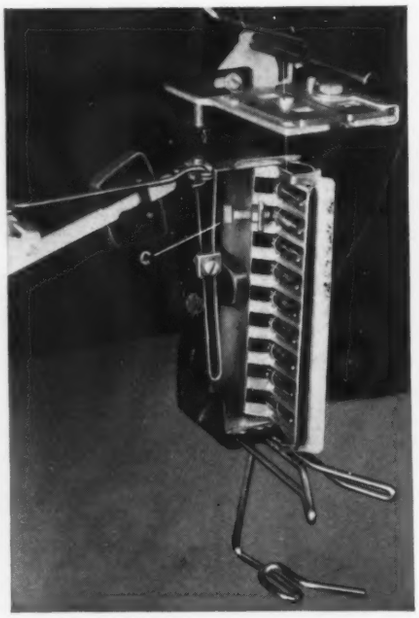
The purpose of this plunger is to prevent any quantity of yarn from passing through to the spindle without tension, which would occur if no provision were made to close the grids after being opened. When the movable grid is opened, for threading-up or for any other reason, the plunger is pushed back into the casting. When the grid is released, a spring behind the plunger closes the grid automatically. If plucks occur while winding, the plunger prevents the grid from opening too far and forces it back.

The Tension Closer is adjusted by means of two check nuts (B) on the far side of the casting. With the yarn running at the start of a package, there should be a .020 inch clearance between the plunger and the plate of the movable grid. The reason for this clearance is to allow the movable grid to open slightly as tension is released by the Differential Tension Lever.

The proper setting of the Tension Closer can be checked when the package on the winding spindle is full. At this point, the movable grid should be close to, but not touching, the plunger.

In the design of the Anti-Wear Tension, provision has also been made for preventing unnecessary end breakage caused by too violent action of the movable grid in closing. Whenever the grids are suddenly opened as the result of plucks or some other interference at the supply, there is a tendency for the movable grid to bound back, which will cause the yarn to wrap around the fingers of the Tension. The Tension Stop (C) serves to keep the movable grid from passing too far through the fingers of the stationary grid.

However, the Tension Stop should not be used to reduce the amount of tension on the yarn. Some mills do this, particularly when winding the finer counts of yarn, and, as a result, they prevent proper action of the Differential Tension Control.



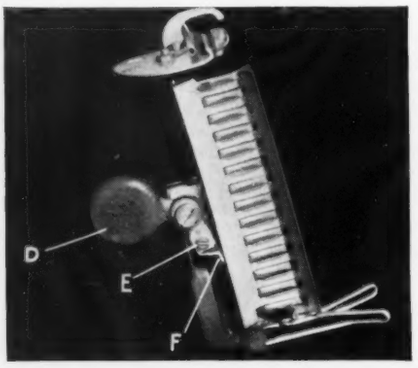
The Tension Stop should be set at the start of winding. With the yarn running, the fixer turns the screw on the Stop until it *almost* touches the finger on the movable grid. It must never touch — for fear of destroying the differential tension feature; if it should touch, the release of tension through the Tension Lever does not take effect until a considerable portion of the package has been wound.

ADJUSTMENT OF FINGER TENSION CLOSER (NO. 50 WINDER)

Using the Finger Tension, the same care must be applied in setting the Tension Closer. The weight (D) serves to close the movable half of the grid after the yarn has been threaded through the Tension. It also prevents the movable half from jumping open while the yarn is running.

The screw (E) just below the stud around which the weight pivots, is adjustable. With the yarn in the tension at the start of winding, the weight is down as far as it will go; this lower screw should now be loosened, which permits the Adjuster (F) to be pressed up *close* to the edge of the movable part of the Finger Tension — but not touching it.

Some mills, desiring to increase the tension on the yarn, mistakenly set the Adjuster to touch the movable finger, so that the weight of the Closer will keep the fingers pushed together. This is not the intention of the design, for it interferes with the proper action of the Differential Tension Lever and makes it impossible to do satisfactory winding.



CHECKING BEAM WEIGHTS AND YARN COUNTS

A weaving mill that has an accurate control of the yardage put on the beam, and of the tension on the yarn, can make a reasonably accurate check on actual yarn count by watching the weights of the beams off the warper.

Some mills keep a chart on a piece of graph paper, on which the beam weights are lined up on the left-hand edge and the corresponding yarn counts on the right-hand edge. These figures are originally worked out on the basis of a table like this:

30/1 400 ends 36,000 yards

Beam Weight (lbs.)	*Actual Yarn Count*
553	31.00
558	30.75
563	30.50
567	30.25
571.4	30.00
576	29.75
581	29.50
586	29.25
591	29.00

Mills running more than one yarn count or a varying yardage on the beams, keep separate charts for each condition.

Allowance can be made for variation in moisture content, and the wet and dry bulb reading at the time each beam is produced, can be recorded on the chart. Many mills follow this procedure in the picker room when weighing laps, and the same thing can be done at the warper. It is especially desirable for a mill operating a high speed system, because a beam can be produced within an hour or two during which time no great change in humidity can take place. With a slow speed system, requiring the better part of a day to produce a beam, there may be enough change in humidity to allow a slight error.

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UNIVERSAL WINDING COMPANY

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THE OVERSEERS' CORNER

A PETE AND BILL DISCUSSION

THE FOREMAN'S WIFE

"Let's hurry and clean up these reports, Bill," cried Pete, brandishing a sheaf of papers in Bill's face late one afternoon. "I've got to get home and clean up in time for the church social. My wife feels like she has to be there, you know."

"Church social!" scoffed Bill. "Haven't been to one in twenty years, and don't let my wife go. Neither a foreman nor his family has any business attending the parties of the people who work for him. They think you're being nosey, you know. Especially the women folks."

"You're nuts, Bill! My wife takes an active part in all community activities. She knows the wife of nearly every man in my department, and tries to call on them all at least once a year. She knows a lot of the women in the mill, too. It pays off in good will. Now and then she finds some family in need of assistance and is able to help them."

"I thought you, Pete, were the guy who is always advocating letting the people alone and not trying to direct their private lives. Don't you know that's exactly what you are doing when your wife sticks her nose into these affairs. You either ought to be a preacher or a welfare director, if that's what you want her to do."

"I've got to get home in time for the church social."

Pete half angrily started shuffling through the reports. "Come on," he spluttered. "Quit talking and finish up this work. Whether you like it or not, my wife and I *are* going to that church social and she *is* going to keep on taking a personal interest in the people in my department."

What part should a foreman's wife play in the community?

Letters From Readers

Costly Not to Help Beginners

"What Chance For Beginners"
Pete & Bill, Jan., 1940

Editor, Overseers' Corner:

I think that the textile industry in most places is making a big mistake in not cultivating and developing young men to assume subsequently positions of trust and importance in its plants. A number of years ago many mills always had several apprentices in the process of training, and some concerns no doubt still have, but, with the depression, keen competition and vanishing profits, manufacturers have had to trim their overhead and there is no room for the education of future executives. This even now is proving itself to be an error and in later years may prove a costly one. In the average plant today the average operator has not much time to do any looking around other than on his own particular operation. Of course our textile schools are always available for any ambitious young man, but his studies would be much more valuable to him were he able to obtain practical experience along with them. On the other hand we have seen foremen who at no time encouraged a desire to learn on the part of their employees, and took the attitude that the knowledge they themselves had acquired must be strictly kept a secret, not appreciating the fact that these ambitious employees would be a definite asset to them and to the department. I am afraid that Bill's attitude toward the Williams boy reflects just that spirit.

R. M. H.
(Massachusetts)

Villages Necessary to Keep Good Help

"Selling Villages"
Pete & Bill, Dec., 1939

Editor, Overseers' Corner:

I agree with Bill whole soul and body in his stand against mill companies selling their houses to the employees. Mill ownership gives the employee the right to work where he pleases and at the same time live in the house while working at that mill. What would happen to his house if he had to leave that job for some reason? It may work fine for a while, but let help get scarce like it did during the World War and see what happens to the company which sells its houses to the help. If you want the

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CONTRIBUTIONS to the letters and practical helps in "The Overseers' Corner" are paid for when published without regard to length. We use letters (not over 200 words) discussing the material on this page or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute practical helps or kinks which are published (not over 500 words) will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. Contributions of greater than specified length may be given consideration as articles. If these pages interest you —contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York.

Berkshire Fine Spinning Associates, Inc., Plant A, Fall River, Mass., has received a plaque in recognition of 3,013,328 man hours worked without lost-time accident from September 1938 to June 1939. Group of officials include following (left to right): Front row, Armand J. Cantin, overseer spinning; Henri F. Horn, superintendent; Agnes M. Flynn, R.N., plant nurse; Everett Hindle, production manager; Walter Bates, overseer weaving. Rear row, Albert Lightbown, designer; Richard Green, overseer carding; Leonard J. Mahoney, overseer spooling, warping, slashing; Stanley Alex, overseer cloth room; Roland Caron, master mechanic; Aime Cadrin, yard boss.

cream of help, keep good houses for them to live in with small rents. In this way you can get the best of the crop.

—A. B. BROWN
(*King's Mountain, N. C.*)

modern mules and frames, which are well adapted to this method.

In producing fine woolen yarns by second spinning, we could, in the first spinning, spin to 8.80 typp (5½ run, 29⅓ cut). In the second spinning we could get to 12.80 typp (8 run, 42⅔ cut).

Spinning in this manner would result in much less yarn breakage, and a spinner could consequently handle a great many more spindles. Yarn breakage in weaving would be proportionately reduced, production would be increased, and quality would be bettered.

The reduction in yarn breakage would be of considerable advantage with automatic looms, and should make possible greater use of automatics in woolen mills.

Other advantages of second spinning are that it makes it possible to produce from low-grade stock yarns which could not be made with a single spinning; also that, using the finer yarns which can be produced by second spinning, designers could employ a much greater variety of decoration and twist yarns than is possible with coarse yarn.

BENJAMIN F. HAYES

(*We should be pleased to have readers' comments on the subject of this letter.*—Editor)

Are Payroll Deductions Advisable?

Editor, Overseers' Corner:

The thought has occurred to me that it would be a good idea and one that would form a closer tie between employer and employee if every employer would make it a condition of employment that every employee must save at least $1 per week from his wages, this amount to be deducted from his weekly pay and deposited to his account and not to be surrendered to him except in case of sickness or death or separation from the company pay roll. This I believe would be a kind of an inspiration to the employee, making him feel that he had a personal interest at stake and thus make him a better worker and a more loyal employee. —K. M. SMITH
Vinton, Va.

Second Spinning of Wool

Editor, Overseers Corner:

This letter relates to a problem which, if solved, might lead to much greater importance of the woolen industry. I refer to second spinning. When second spinning was dropped by the woolen trade, the machinery for spinning was not in the same class as our

Overseers' Practical Helps

Reducing Feeler Waste

We were having trouble with excessive feeler waste on a group of dobby looms that had been running only a short while after having been stopped for some months. Weavers and fixers were working like mad to get production, and paying little attention to the feelers, so long as they didn't skin quills.

I knew that if I, a quill boy, began to stop and flag looms, I would only antagonize the weavers. So, instead, I went around each morning with a notebook and pencil, looked into every quill can, and marked down the number of looms on which the feeler was not working properly. I handed the numbers to the fixer, and he worked on those looms whenever he found time. A duplicate list was given to the fixer on the evening shift by the overseer.

Improvement came rapidly, for the fixers were glad to adjust those feelers that needed it, if only they weren't bothered while they were busy. The first morning there had been 36 in need of attention; on the sixth day there were but three, and only one was really bad.

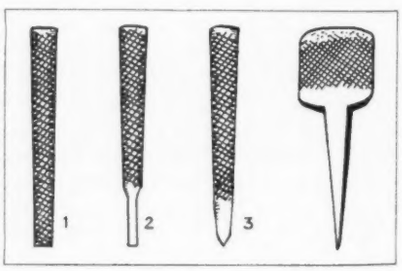
—J. C. NORMAN (*Alabama*)

Uses For Worn Out Files

I have found that worn out files make very serviceable small punches. The files should be broken off to the required length, heated, shaped with an emery wheel, and the point re-tempered. The butt should be left fairly soft so it will not chip the face of the hammer.

Three of the punches shown in the accompanying sketch were made from round rat-tail files; the other from a half-round file.

Punch No. 1 can be used to drive



Punches made from old files are very useful

stuck pins and studs from gears, bearings, etc. No. 2 is used to brad rivets in right-hand front boxes of looms equipped with Stafford thread-cutters; and for driving pins from rocker-shaft bearings, batteries, etc. No. 3 is a satisfactory center punch, used to mark places to be drilled in metal; it is also handy for removing pins and rivets, for loosening setscrews which have been twisted off, and for removing screws which cannot be turned with a screwdriver. No. 4 I use to make holes in pickers and picker sticks to start picker screws and lug-hanger screws. It is a complete tool for putting eye-screws in harnesses; a hole is started in the wood, the screw is started, and the punch is inserted in the eye to give leverage for turning.—W. C. Westbrook, Ga.

Weaving Seersucker

Simple devices applicable to any loom will produce good crinkle

RECENTLY, the manager of a fancy goods mill decided to weave seersucker on his automatic 4 x 1 box looms. He wished to make a fabric with rayon-satin and cotton warp stripes, using 150-den. rayon and 40/2 cotton in the warp and 25 picks of 3s cotton in the filling. As he had not had experience with the weaving of seersucker, he stated his problem to our Questions & Answers Department. It believed that the methods suggested to this man will be helpful to others interested in weaving seersucker.

SEERSUCKER can be woven on either plain, dobby, or jacquard looms, depending upon the type of pattern to be made. Crinkled warp stripes are a distinguishing feature of seersucker. The contraction of the warp in these stripes is much greater than that of the warp in the ground stripes. Consequently, the warp which forms the crinkle stripes must be put on a separate beam (top beam), and just enough tension placed upon it for the ends to form a shed properly during weaving. Frequently, however, an even crinkle is not obtained with this slack warp, and it is necessary to employ special methods of regulating the crimp, in order to obtain satisfactory results. Two of these methods are shown in Figs. 1 and 2.

In one method (Fig. 1), the ends from the top beam pass around a cradle that is connected to one end of a rod, the other end of which passes through a metal piece attached to the reed cap. This rod is held in place by a spring and collar and, as the lay moves forward, pulls the bottom of the cradle toward the front of the loom, thus releasing the tension on the top warp and allowing the ends to contract freely. By adjusting the collar on the rod, one can regulate the amount of slackness to give the crinkle effect desired.

In the other method (Fig. 2) instead of the rod and spring, two levers and a cam are used. The cradle is held in place by a lever which rests on a stud attached to the loom side and which is held down by a spring. Another lever, which also is attached to the top rod of the cradle, rests on a cam placed on the end of the crankshaft. Revolving of the crankshaft causes this lever to be raised every time a pick is inserted. As the lever is raised, the bottom part of the cradle is moved toward the front of the loom, thus releasing the tension on the top warp and allowing the ends to form the crinkle effect. By increasing or decreasing the cradle's stroke, one can make a change in the amount of crinkle in the fabric. The cam should be set so that it is straight up when the crankshaft is on front center. With the cam in this position, the top warp will be slackened just as the filling is beaten up.

The plain weave is used altogether in some seersucker fabrics and the construction is exactly the same throughout the pattern. However, it is not general practice to make the crinkle stripe identical in construction with the ground of the pattern. Some mills use double ends to form the crinkle stripes; others use a coarser yarn, as it gives a good effect and somewhat reduces the fabric cost. For instance, if 26/1 warp is used for the ground, approximately 13/1 warp should be used for the crinkle stripe.

The rayon-satin stripes will contract less than the ground of the fabric and the cotton seersucker or crinkle stripes will contract considerably more. Therefore, it will be necessary to use three beams.

No special twist will be necessary in the 40/2 yarn to produce a crinkle

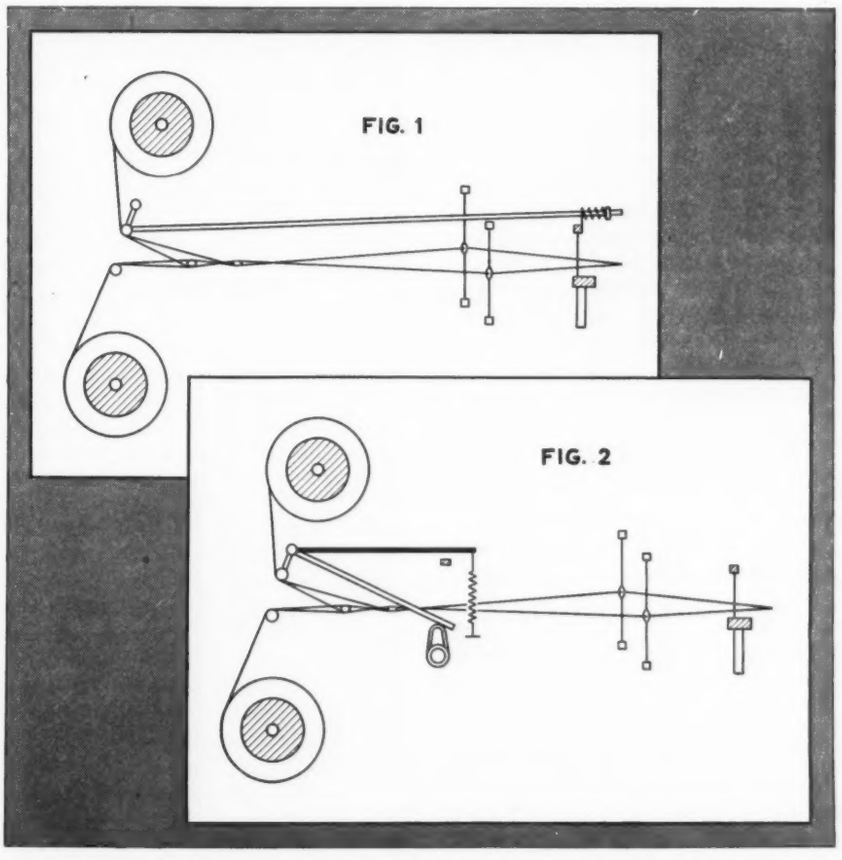


Fig. 1. Warp slackening device operated by the lay. Fig. 2. Warp slackening device operated by the crankshaft

effect if the other conditions outlined above are complied with. However, in the rayon trade special twists sometimes are used to produce a crinkled effect. For instance, suppose a pattern is woven with 40 picks of crepe-twist filling and 10 picks of regular-twist filling. When the fabric is finished, the crepe twist filling contracts considerably, thus causing the stripe of regular twist filling to buckle or crinkle, so as to form a type of seersucker stripe across the cloth from selvage to selvage.

Making Good Woolen Yarn

At a profit requires close control of waste and maximum machine efficiency

By G. MARSHALL

This is the concluding installment of a short series of articles on the subject of faults in woolen carding and spinning. Previous installments appeared in *Textile World's* August, September, and November, 1939, issues.

IN WOOLEN YARN MANUFACTURE the question of yield is of considerable importance. A small error between the estimated and the actual yield may mean the difference between a profit or a loss. It is essential to ascertain where any undue loss is taking place, whether it is in blending, carding, or spinning, and act accordingly. The principal causes of loss in carding are dropping of stock between cylinder and doffers; and stock being taken up and retained by the cards, which has already been considered (TEXTILE WORLD, August, 1939).

The first of these faults may be due to too open a setting of the doffers, to too low doffer speed, or to lack of point or poor condition of the cards. Inefficient fancy action may make it impossible for the doffers to clear the cylinders, or, if the machines are run too long between strippings, the doffers may become choked with grease and so be unable to retain the stock.

It may be said that this question of stripping is also of considerable importance in other respects: it may be responsible for the production of neppy roving. In order to prevent this fault, which may be particularly serious at the breast doffer, fillets are used instead of sheets for certain stocks; on very low work the doffer may be reversed; while in some cases experiments are being made with undergrids under the cylinder similar to those used on the Continental type of machine.

The rate of output in woolen carding, even on similar types of material, may vary remarkably from one mill to another; e.g., one firm may be producing an 18s yarn at the rate of 12 to 15 lb. per hr., while a neighboring firm may be producing a similar yarn at from 60 to 70 lb. per hr. Of course, the standard of yarn required by different firms varies considerably, and this factor may have a considerable effect on the rate of production in carding. If maximum efficiency is to be obtained, it is necessary to have cards of a type suitable for the class of material to be carded, to have cards always in first-class condition, and to have the most suitable settings and speeds of all the various parts of the machine.

IN SPINNING, the chief faults that arise are: (1) low efficiency; (2) production of twitty or uneven yarn; (3) insufficient use of draft; and (4) production of snarly or badly wound cops.

If maximum production is to be obtained in spinning, the mule or frame must be run with the minimum number of stoppages. Some stoppages are necessary for the replacement of spools of roving, for doffing, and for changing from one blend to another. Then, there are the irregular stoppages which occur when ends break in such numbers that they cannot be pieced up with the machine in operation, for replacing broken spindle bands or various ropes, one machine standing while another on the same drive is doffed; and stoppages due to mechanical breakdown.

The time lost by necessary stoppage may be reduced to a minimum by proper organization. Where the size of the plant justifies it, it pays to have a man to fill the creels with spools and remove the empties, to see that a supply of cops or bobbins is ready for each machine as it is to be doffed, and to see that containers are ready for the yarn.

As regards irregular stoppages, if ends break in large numbers, it is usually due to some fault in the blend. A greater first cost for better material might result in a cheaper and better yarn. If the mill is kept warm over the week-end, stoppages for broken bands on Monday mornings will be reduced, and, incidentally, the cards will benefit considerably. Mechanical breakdowns can be reduced to a minimum by proper oiling, cleaning, and inspection. It pays to have machines lined up and repaired by a competent mechanic at intervals. For example, in many instances the large rim wheel of a mule is reduced in size because of the tendency of the spindles to vibrate. This causes a serious loss in production. If the mules are kept in good condition, the normal speed may be maintained, and in many cases this alone will pay for the necessary repairs. The spinner should watch for signs of wear in rim bands, so that these may be repaired before they actually break and fly off.

Twitty yarns may be produced on the mule by too much tension between the spools and the rollers, by the incorrect use of carriage drag, or by incorrect balance of draft and twist. The first fault is most likely to occur if the rovings are not all rubbed alike, and in such a case the spinner is in difficulties; if he slackens the ends, some will run up the bobbins and probably break. The real remedy is in the hands of the card room overseer. Carriage drag can be used quite successfully if the drag is balanced by sufficient twist, but when wool blends are being spun in this manner, with a large drag wheel, the pinion wheel must be small, the rim wheel large, and the scroll band pulling at the knot. This method of spinning may be useful for nep yarns.

FIBER CONTROL in drafting on the woolen principle is by means of twist inserted during drafting; too little twist may result in twits; too much, in broken ends. Spinners often seem to be a little afraid of draft; they desire the condensed counts to be smaller than is desirable in many cases. This can be accounted for by the mixed nature of many blends; but draft is almost as important as twist in the making of a yarn, since the drafting straightens the fibers and makes them take their correct position in the yarn. If insufficient draft is used, it is difficult to obtain a yarn of maximum strength.

Production of snarly or badly wound cops is due to the backing-off mechanism being incorrectly adjusted, to incorrectly weighted or sticking fallers, or to incorrect adjustment of the quadrant chain during the building of the cop bottoms. These faults can generally be overcome by careful adjustment of the parts involved; with highly twisted yarns, however, some difficulty may be experienced.

Abstract of a paper delivered before the Dewsbury Textile Society, England.

QUESTIONS & ANSWERS

Repeat Marks in Satins

Technical Editor:

Will you kindly tell us how to eliminate 8-pick repeat marks in 8-shaft rayon satins? We have always made satins, and I suppose we do know and do practice the fundamental rules for running this construction. However, it is possible your experts may have some kinks of their own for handling this problem. (8612)

One common cause of repeat marks of this type is uneven lift of harness shaft. Each shaft should be set so it will raise the warp ends it controls to exactly the same height as all other harnesses. Another cause lies in the fact that some mills, when weaving fabrics of this type, set the shafts even or over center when the reed is up to the fell of the cloth. We suggest that the shafts be set even when the reed is about ¼ in. away from the fell of the cloth. Also, care should be taken to make certain the setting is the same on each pick of the weave. As regards the whiproll, we believe it should be set at dead center with the warp line. Some mills weaving this construction do not pay enough attention to their shaft springs, which may also cause the trouble in question. These should be given close attention, to make certain they are operating properly.

All of the above suggestions are on the basis that the repeat marks in question are across the entire width of the fabric. If the marks appear only about 7 or 8 in. from the selvages, the problem is of a different nature; however, as you did not state this in your letter, we assume the marks are of the first type mentioned.

Slashing Worsted Yarn

Technical Editor:

Kindly recommend a formula for slashing Bradford-spun worsted yarn, and also one for slashing fine French-spun worsted yarn. We use a hot-air slasher, with single-dip immersion. (8626)

At present much worsted yarn spun on both the Bradford and French system is being sized for weaving purposes with a gelatine-base size. Although mills can make up a size of this type by compounding the necessary gelatine, penetrating agents, softeners, etc., it is usually considered best to use one of the compounded products containing all of the necessary ingredients. Such products are available from numerous manufacturers making a specialty of this type of work. Using the basic formula supplied by the sizing manufacturer, one can readily determine from a trial run of a few yards whether the count of the particular yarn in question or the degree of size desired in the yarn requires for best results an increase in the proportion of either water or size compound.

Gelatine sizes of the type above mentioned are usually prepared by stirring the compound into cold water and allowing it to soak for some 15 or 20 min., after which the temperature is gradually raised to 150 to 155° F., but not higher. The material is then agitated until the size is completely dissolved; at this time it is ready for use.

Recommended application temperature is about 125° F. The speed of the slasher and the temperature of the hot-air chambers should be so regulated that the sized warp is beamed with 10 to 12% moisture content. If the warps appear to be sized heavily enough and yet appear somewhat too stiff for the type of loom and weaving intended, it may be necessary to add small amounts of glycerine to the size mixture.

Defect in Hosiery

Technical Editor:

We are inclosing a sample of one of our styles, which is an 8-thread service-weight 81% silk, 3 turns.

For many years we backwound all our service-weight silk when it was received from the throwsters, but recently he has been processing our silk for direct knit. We have met with fairly good success in this regard, but today a large batch of our 8-thread stockings has come through in a condition similar to the sample inclosed.

What we cannot understand is why there should be a smooth space right down the center of one side of this stocking, yet there is great sleaziness on either side of this space. Also on the opposite side of the stocking the same condition exists, but it is not so pronounced. Will you kindly examine this stocking and advise us what could cause such sleaziness? We conditioned this silk in the conditioning room in the usual way for several hours before knitting. (8704)

It is our opinion that the processing of the silk has nothing to do with the sleazy condition of the sample. The condition seems to be a washboard effect, more than sleazy knitting. We believe the effect was produced by an improperly adjusted slurcock, which caused one course of loose knitting and one course of tight knitting, in uniform sequence.

The smooth space down the center of one side of the stocking is produced by tighter knitting, which minimizes the variation in the loose and tight courses in the other part of the fabric. This tight knitting was possibly produced by reason of the fact that a group of needles at this point was pliered out of line, or possibly by a verge plate being improperly adjusted or worn out of true alignment. The same effect can be produced by a group of different length sinkers or striking jacks.

To correct the trouble, properly adjust the slurcock; correctly align the needles; adjust and regrind the verge plate, if necessary, to make a perfectly straight surface; and check on the uniformity of sinker and striking jacks. Incidentally, we suggest that you increase the twist in the 8-thread silk to at least 10 turns, three turns being entirely too little to produce a fabric of the kind expected today. The low twist is also conducive to the conditions shown in samples submitted.

Permanent Moiré Effect

Technical Editor:

We would appreciate some information in regard to permanent silk moiré fabrics. We are familiar with the permanent moirés made on cellulose acetate rayon, with scratch moirés, and with the impermanent moirés made on rayon and silk. Every once in a while we hear of someone who has seen a permanent silk moire and we would like to know the process used. Any information you can give us will be appreciated. (8681)

The usual method for producing a moiré effect is by passing the cloth through suitably engraved calender rolls. Another method, which is said to give a more lasting effect, is to fold the fabric lengthwise with the face in, dampen, and pass between heated cylinders. Some finishers are now coating silk fabrics with cellulose acetate and then passing them through a calender to produce a permanent moiré effect.

Crepe-Twist Cotton Yarns

Technical Editor:

Do you know of any standard for crepe twist in cotton yarns? What would be the minimum twist multiplier that could be considered crepe twist? We are under the impression that somewhere around 7.00 to the square would be about right. Voile twist is generally considered between 5.00 and 6.00. As far as we know, there has never been any standard to cover this and wonder whether there is such a thing. (8703)

There is no standard for crepe twist in cotton yarns. The amount of twist

inserted will depend upon the type of cotton used.

Using a good middling cotton of about $1\frac{1}{8}$ to $1\frac{3}{16}$-in. staple, around 8 times the square of the count of the yarn is considered a good twist. Any higher twist than the above is likely to weaken the yarn. If using Sak or Pima Cotton, it is possible to go as high as 10 times the square of the count, but to insert such a high twist the staple must be the longest it is possible to obtain.

We doubt if there is any good voile twist under 6 times the square of 50s yarn on a 60 x 56 voile, but as high as 8 times the square is often used on a fine pima voile counting 68 x 68 and using 70s warp and filling.

Rayon Crepe Construction

Technical Editor:

Inclosed are three samples of rayon crepe. About these we should like to learn the following: (1) Is the construction of these crepes the same in each case? (2) If the construction is the same, what in your opinion is the reason for the variation between Samples 2 and 3? (3) Do you think sample No. 1 has been embossed? (4) If the construction in each case is the same, is this the proper construction for a rough crepe? (8587)

(1) Samples 2 and 3 appear to be exactly alike in construction, both as regards ends and picks, and warp and filling yarns. On the other hand, sample No. 1 differs somewhat, in that there are twelve more ends per inch and four less picks per inch. (2) The finish in Samples 2 and 3 is not so good as in Sample 1, there being no pebble in the first two samples mentioned. Samples 2 and 3, when held up to a strong light, are found to have warp and filling yarns lying nearly straight, whereas in Sample 1 the yarns are considerably snarled, which gives the appearance of more pebble. (3) We believe sample 1 may have been embossed, and that it has been given a thorough processing and finishing. (4) We suggest that you construct Samples 2 and 3 the same as Sample 1, which, among the three submitted, we prefer. However, there are numerous ways of making rough crepe and this question finally resolves itself into a discussion of what type of rough crepe is desired.

Fabrics Cockle in Fulling

Technical Editor:

We are having trouble with our woolen fabrics cocking during fulling. The defect shows up so regularly in the cloth that we are convinced that it is caused in the loom. It is the writer's belief that the uneven weaving is caused by uneven friction, due to the bands sticking and then releasing when the tension builds up to a certain point. Of course, there may be some other mechanical fault or maladjustment of the loom that is causing the trouble. We shall be very grateful for any light you can shed on this subject. (8651)

Trouble of the kind outlined, if caused at the loom, is probably due either to uneven weaving or uneven filling.

Assuming the trouble is uneven weaving, there are a number of items which you should check. If ratchet take-up is in use, examine closely the pushing rod and the catch dogs; make sure they clear the take-up gear and that there is only a small amount of space between the take-up dogs and the take-up gear. Many mills have obtained satisfactory results by using a hemp rope in connection with friction let-off; about ½ in. diameter should be satisfactory. Use this rope on one lever only, and wrap the rope tightly around the beam head. On the other side use a regular lever, with a thin band of cloth either soaked in oil or covered with graphite.

Although it is contrary to general belief, it is many times possible on light work to get sufficient tension with one lever. It is also sometimes possible to weave more even cloth with one lever than with two, especially in the case of light work and shaky, vibrating floors. Weight may be hung on the rope or, if more tension is required, leverage may be used.

Sometimes uneven cloth can be caused by the whiproll. For instance, a whiproll may stick for a considerable period; then a new weaver will oil the bearings and the whiproll will turn again. However, while it was stopped it wore a flat surface on the bearings, and when it begins to turn does not turn evenly, thus causing uneven cloth. The remedy is to fasten the roll so that it cannot turn, or replace the worn parts.

If the trouble is caused by uneven filling, the best method of eliminating it is to mix the filling well during weaving. If automatic looms are in use, use three or four shuttles, taking two picks off each shuttle in succession. If plain looms are in use, use three or four shuttles, taking only one pick at a time from each shuttle. Also, make certain that weavers do not change more than one shuttle at a time. The reason for this is that, if all shuttles are changed at once, one might just as well operate with a single shuttle since the mixing principle is thus voided.

It is sometimes possible to determine whether uneven weaving or uneven filling is causing the difficulty by looking through the woven fabric. Uneven weaving will show up very clearly, but uneven filling will not be so noticeable.

Blanket Layout

Will you kindly outline the construction and layout for a 72 x 84-in. all-wool, 3-lb. blanket, woven in stock-dyed pastel colors with a 4-harness twill weave in 4 x 1, 110 in. wide, automatic looms? Mule-spun yarn, from a blend costing not more than 70c per lb. and containing all virgin wool, some percentage of which will be unsorted local stock, will be used. (8637)

To obtain a blanket of the above-outlined specifications, use 3.20 typp (2 run, 10.67 cut) yarn for warp and filling. Warp should be 24 ends per in., 90 in. wide at the reed, and the filling should be woven 26 picks per in. Allowing 10% for take-up in weaving, 2% for length shrinkage in finishing, and 14% loss in weight in finishing, the resulting fabric will weigh 20.6 oz. per yd., or 3 lb. per blanket length of $2\frac{1}{3}$ yd.

A suggested blend would be 70% of White B super and 30% of uncarbonized recombed quarter-blood noils. If desired, suitable local stock can be substituted for the noils, provided it is white or composed of light colors. Composition of the blend varies with the nature of finish desired, market price and other specifications; therefore experimentation in this direction is most desirable. To assure satisfactory pastel shades, free of all vegetable impurities, the fabric should be piece carbonized. If local stock of light colors is used, stripping will be necessary in addition to the carbonizing.

Causes of Water Marks

Technical Editor:

Inclosed is a sample of silk cloth in the gray. You will notice that this fabric shows water marks. Is there any way the cloth can be woven so that it will not show these marks? (8677)

There are two possible causes of the water marks noted. The first, and most likely, is that the moisture content of your throwing stock is too great. The warp yarn has a chance to dry out, but the filling is probably used direct from the case. During weaving, the excess water evaporates, and causes the spots to appear. Although these spots will not injure the fabric, it would be advisable to have an intact case tested by a reputable testing house, in order to determine whether you are securing the proper yardage of yarn.

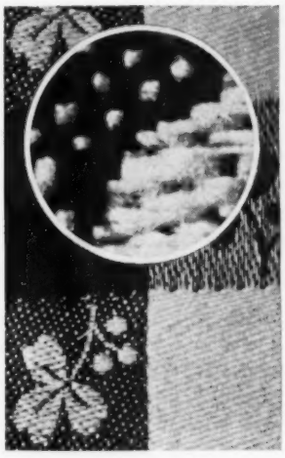
A second possible cause is an overhead humidifying system, which throws a heavy spray and forms drops on the cloth.

Another defect noted in this sample is the box stains which are quite noticeable all along one side. We would suggest that you examine these closely and try to eliminate them.

STAPLE COTTON FABRICS

By JOHN HOYE
Fabric Technician with W. Harris Thurston, New York

This is the fiftieth installment of Mr. Hoye's series of articles on staple cotton fabrics.



Dobby-woven table-cover fabric (saloon cloth), 58 in., 64x80, 1.70 yd., finished 54 in.

Table Cover Fabrics

Dobby-woven staple fabrics often are erroneously called damasks. They are extensively used for table tops, etc., and include staple reversible all-white herringbone twill stripes and conventional all-over small designs; and white-and-colored block, shamrock, and check patterns, etc. The twill stripe fabrics often have woven key, dice, or block pattern borders. Some of these pattern cloths are woven with matching filling patterns at intervals to form an all-over balanced pattern. Usually they are sold as piece goods in finished widths of 15, 18, and 22 in. for napkins and in 36, 45, 58, 64, and 72 in. widths for table covers. The colored checked cloths also are known as saloon or beer garden cloths. These staple dobby table fabrics usually are given a plain finish, and, sometimes, a mercerized and permanent no-lint finish. The all-white twill fabrics sometimes are hand-blocked or screen-printed.

Dobby-woven novelty fabrics include fancy woven cloths in all-white and with colored borders, various highly colored plaid and check effects, plain-woven checks, and plain-woven ground cloths with jacquard-woven clipped designs. Also they are made with open leno-woven lace-like effects. Different sizes are made for various uses, such as breakfast cloths, bridge cloths, garden-table covers, etc. Bleach-fast colors are necessary. These fabrics are sold in sets of tablecloths and matching napkins, as well as in yard goods of 45, 56, 64-in. widths. A quantity of these highly colored fancy-woven fabrics are imported from Holland. Cotton crepe tablecloths imported from Japan have colored-yarn plaids or are block printed. Novelty table cover and napkin fabrics are made with an all-round self fringe instead of a hem.

Napkins are made from narrow-woven cloths to match wide table cover fabrics. They are also cut and hemmed from wide-width fabrics.

Warp yarns: 16s to 30s cotton, 30/2 mercerized. Filling yarns: 18s to 26s cotton, 30/2 mercerized.

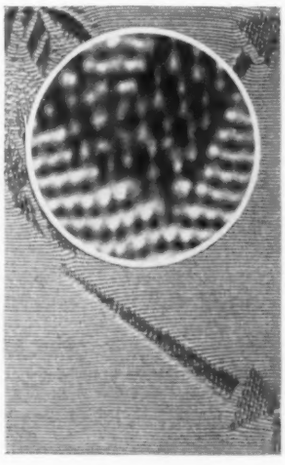
Examples of dobby-woven table cover fabrics—gray constructions:

78 in. 74x56 1.28 yd. reversible herringbone stripes.
58 in. 58x54 1.53 yd. white and colored yarn all-over dobby design.
58 in. 64x80 1.70 yd. white and colored yarn shamrock and block design.
48 in. 36x30 2.04 yd. white and colored yarn plain-woven block pattern, 2-ply warp and single filling.

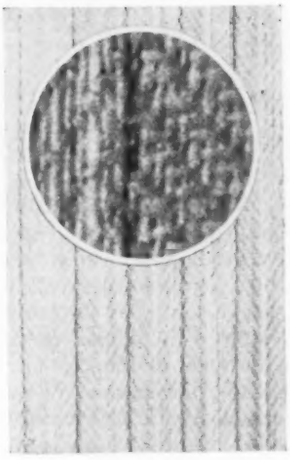
Table-cover fabrics known as crash are converted from standard gray cloths, such as warp sateens, sheetings, and part-waste osnaburgs. These are bleached, dyed pastel shades, and often are screen printed or hand-block printed. Also, they may be embroidered, either in the bleached or unbleached state.

Examples of converted table cover fabrics:

54 in. 96x60 1.55 yd. warp sateen.
54 in. 36x32 1.60 yd. part-waste osnaburg —red-tinged filling.



Jacquard-woven batiste, 40½ in., 120x56, 2.40 yd., rayon warp and combed filling, plain-woven ground



Reversible herringbone stripe table-cover fabric, 78 in., 74x56, 1.28 yd., finished 72 in.

Corset Fabrics

Corset and brassiere fabrics include batiste, rayon stripes, rapon warp jacquards, and brocade (or broche). These are either piece or yarn dyed and usually are finished 39½ in. wide.

Sometimes both plain and fancy corset fabrics are woven with covered rubber yarn, to give the cloth elasticity. Usually this yarn is used only in the filling; occasionally, however, it is used in both the warp and filling to obtain a two-way stretch.

Batiste is either plain, dobby, or jacquard woven with carded or combed yarns. Sometimes rayon is used for decorative purposes. Plain-woven batiste is a strong, closely woven fabric similar in appearance to broadcloth or poplin, but heavier. Usually this fabric is made of single yarns, and may have anywhere from 50 to 100% more ends than picks. The best-quality combed batiste is made with mercerized ply yarns. Batiste is piece-dyed in shades of nude or tea rose. Other than in the corset trade, the term batiste generally refers to a soft, fine, sheer, combed, mercerized lawn type of fabric.

Warp yarns: 24s to 26s carded cotton; 24s to 26s singles and 40/2 ply combed cotton; 60/2 to 80/2 ply mercerized; 100 to 150 den. rayon; 3,500 to 6,000 yd. per lb. covered-rubber yarn. *Filling yarns:* 14s to 16s carded cotton; 16s to 18s combed cotton; 300-den. rayon; 3,500 to 6,000 yd. per lb. covered-rubber yarn.

Examples of batiste:

40½ in. 96x56, 24s warp and 16s filling, carded, plain-woven.
40½ in. 96x62, 25s warp and 16s filling, combed, plain-woven.
40½ in. 140x72, 60/2 warp and filling, mercerized.
37 in. 136x52, 150-den. rayon warp and 6,000 yd. covered-rubber filling—finished 32 in.

RAYON AND SILK SECTION—Chapter IV (Continued)

By H. E. WENRICH

Driving and Shipping

BRAKE AND SHIPPING MECHANISMS will now be discussed and suggestions given on keeping them in proper working order. To weave perfect cloth the loom should stop, when the brake is applied, at least ½ in. before the reed strikes the pick on the beat-up; or, in other words, before the lay comes to front center. Minor adjustments to the mechanism shown in Fig. RS16, which has an internal-expanding clutch, can be made by means of the outside and inside clutch-fingers. Raising the outside finger will increase the friction, and lowering it will decrease the friction. Other adjustments to the friction can be made by turning the nuts on the shipper connector, so that the rod is moved farther in or out of the rod head, as desired.

In the illustration shown, the brake band fits into place in front of the motor gear. Its bottom end is secured to the brake-lever, which has as its fulcrum the brake-lever stand. The force with which the brake is applied is adjusted through the spring shown by means of the nuts connected to the brake lever. The brake band can also be adjusted by means of the adjusting nuts connected through the anchor bracket. This is an improvement in accessibility over older types of brake motions, since it does away with the method of adjusting the band from the bottom. When released, the brake is held in "off" position by means of the stud which passes through the brake lock-lever.

Fig. RS17 shows some of the parts of an assembly of the type which must be adjusted from the bottom. As a matter of fact, this is the type still in use on the majority of looms weaving silk and rayon fabrics.

The brake band is secured to the brake casting by means of rivets. Should the casting break, the rivets can be removed and the broken casting replaced with a whole one. Adjustment of the brake band is by means of a bolt which is fastened to the brake lever. This, in turn, is bolted at its bottom to the loom-side. Moving the nuts on the adjusting bolt toward the brake casting will tighten the brake; moving them away from the casting will loosen it.

When placing a new brake band on a loom, put one nut on the adjusting bolt, then slip this end down and put the bolt in its proper hole. Next, put the opposite end of the band into the band stud at the top. Then place the second nut on the adjusting bolt, and tighten it until the handle lever fits snugly against the brake handle.

At certain times, adjustments will go wrong, and the brake will fail to stop the loom quickly enough to prevent cracks and shires, and an understanding of the brake mechanism and certain of its functions will help the loomfixer to be able to eliminate such difficulties as appear. Pulling on the brake handle forces the top of the handle lever to move forward, and moves the brake rod toward the back of the loom. This pushes the brake into "off" position, so that the lay is free to move. When the brake is applied, the handle is thrown to the "on" position, and the spring attached to the brake-lever pulls it forward, thus applying the brake. Intensity of the spring can be increased or decreased by manipulation of the adjusting nut on the end of the bolt which protrudes from the spring.

If the spring bolt breaks, it will be necessary to remove the spring stud before replacing the bolt.

Sometimes the handle lever fails to fit snugly against the brake handle, or, when the adjusting bolt is tightened, it becomes necessary either to shorten or lengthen the brake rod. In such a case, first remove the head on the bottom of the handle lever, then loosen the brake-rod arm. Next, turn the rod in the adjusting nut into which the other end is screwed, until the desired change of length is secured. Then, replace the rod, and retighten the brake-rod arm.

Once in a great while, a short rod will be encountered. When this occurs, the rod can be cut and a short piece welded in the center of its length. Grind the weld down smooth, as it may be necessary to slide a new brake-rod arm on at some future date.

If the lay goes beyond the front-center position when the brake is applied, the nuts on the adjusting bolt fastened to the end of the brake band must be tightened, a turn at a time, until the correct position is secured. In conjunction with this adjustment, if the lever attached to the front end of the brake rod does not contact the tumbler, the rod must be lengthened until the lever fits snugly against the bottom of the tumbler.

Further brake adjustments can be secured by lowering or raising the stud

Courtesy of Crompton & Knowles Loom Works

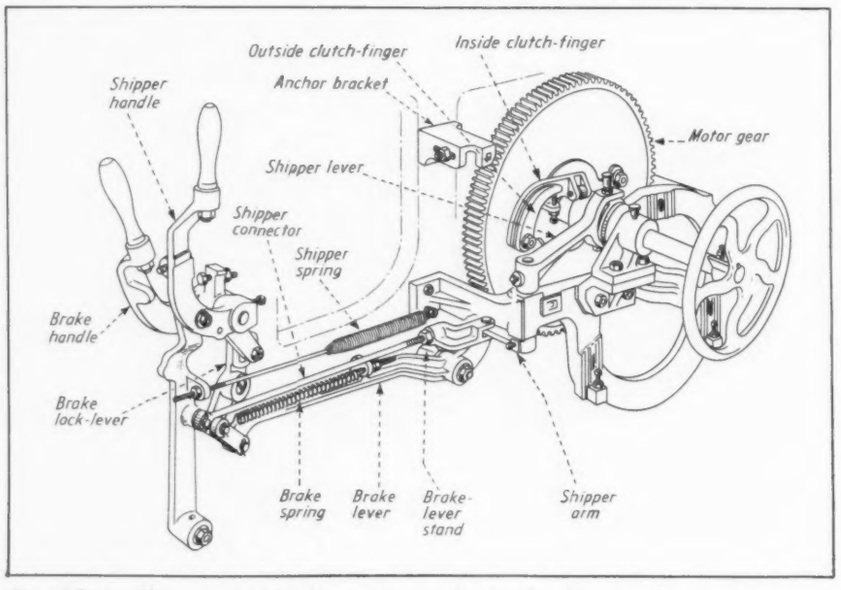


Fig. RS16. Shipper and brake motion with clutch of internal-expansion type, and external-contracting brake

bolt which anchors the brake band to the loom frame. Placing the stud in the top hole lessens the braking power; hence, it is preferable to keep the stud in the lower hole, whenever this is possible.

Also, raising or lowering the shipper-stud bracket will affect the braking mechanism. When a clearance between the brake handle and handle lever is noticed, move the bracket up so that the lever is forced snugly against the tumbler. At times, it will be found the handle can be moved with the pressure of only a finger. This indicates that the lever is too low, or that the brake-adjusting nuts are drawn up too much. Moving the bracket up will usually remedy the trouble.

Keep the roller on the top of the handle lever well oiled, as this prevents wear to the surface of the tumbler or the bottom of the brake handle.

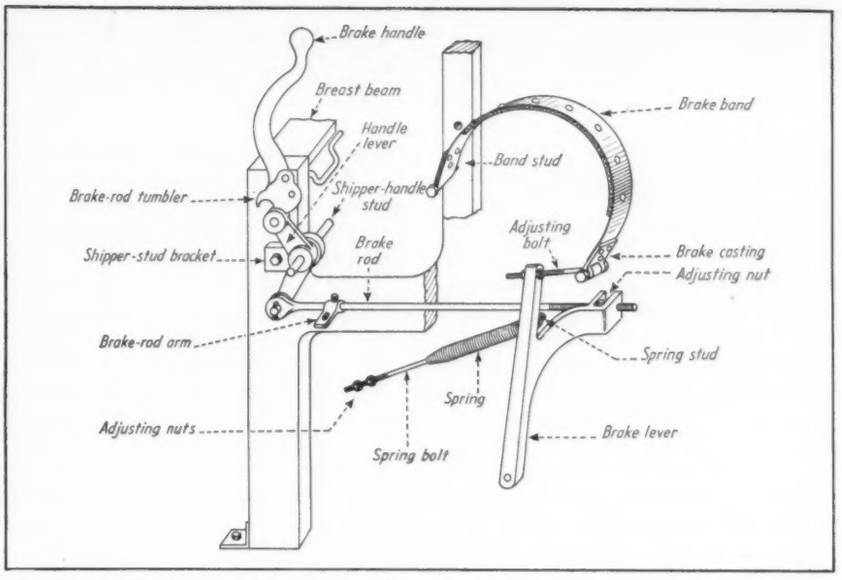


Fig. RS17. Brake and shipping mechanism used on many silk and rayon looms

COTTON SECTION—Chapter VIII (Continued)

By IVAR MOBERG

Filling Stop-Motions

RELATIVE POSITIONS of knock-off, knock-off finger, and knock-off dagger with the loom at bottom center or a trifle beyond, were discussed in the last paragraph of the installment of the manual which appeared in our January issue. It was stated that, with the loom in the position above mentioned, and with the knock-off well into the dagger, the knock-off should be in contact with the raised knock-off finger. On looms with iron breast beams, the contact surface of the knock-off stand is cradle shaped, and the position referred to can be obtained merely by turning in opposition the two adjusting screws in the stand.

Now, so adjust the height of the knock-off stand that when the knock-off rests on the raised shield, the fork wires will be $\frac{1}{16}$ in. below the raceplate. Bore holes in the breast beam for fork-stand lagscrews and tighten the stand in final position.

We can now proceed with the steps in setting and adjusting center filling stop-motions. With the shipper handle in "on" position, adjust the knock-off arm on the shipper rod so that it will position the knock-off finger within $\frac{1}{8}$ in. of the stop. Tighten the setscrews with the ram in this position. Now, with the lay on bottom center, adjust, if necessary, the length of the connector rod so that the knock-off will clear the knock-off finger by $\frac{1}{16}$ in., with fork wires $\frac{1}{16}$ in. below the raceplate. Next, turn the loom to back center and, with the cam $\frac{3}{16}$ to $\frac{1}{4}$ in. behind the knock-off finger, so adjust the height of the cam that it will raise the fork wires $\frac{1}{8}$ to $\frac{3}{16}$ in. above the shuttle. Tighten the cam in this position. The stop-motion works better with the fork wires low, but guard against their rubbing on the shuttle.

Now, tentatively apply compressor-spring tension on the filling fork. Final adjustment of this tension is best made when the loom is running under normal conditions. On more up-to-date center filling stop-motions there is an adjusting screw which relieves the filling fork from all spring tension as soon as it touches the filling beneath it. Thus, only gravity presses the filling fork on to the filling. To set this adjusting screw, place a piece of filling in normal position under the fork and turn the loom slowly until the fork wires just touch the filling. Adjust the screw so that in this position its head will just touch the compressor spring.

Now knock off the shipper handle and adjust the shield-lever spring so that, working through the shield lever, it will force the shield into its protecting position and hold the knock-off above the knock-off lever. It is important that the shield rise into protecting position every time the loom is knocked off. Otherwise, if the loom is started without filling under the fork, the shipper handle will be pulled out of the operator's hand. Also, under such conditions the strain on the filling stop-motion may cause it to break or get out of order.

On some makes of looms, without breast beams, the knock-off mechanism is located at the side. A long rod leads from the center fork to the side of the loom, at which point it is connected with the regular knock-off mechanism. The setting and adjustment of this motion is the same as that just described.

To check filling stop-motions proceed as follows:

Knock off the shipper handle and make certain the shield rises into protecting position. Throw the shipper handle into "on" position and ascertain that the shield remains in that position. With the loom on back center, check the $\frac{1}{8}$- to $\frac{3}{16}$-in. clearance between the raised filling fork and the shuttle. With no filling under the fork, turn the loom toward front center and make sure the shield holds the knock-off out of engagement with the knock-off finger. Continue to turn the loom until it reaches front center, at which point the shield should have reached its lowest position, due to the knock-off coming in contact with the projection at the front of the shield and pushing it down.

Continue to turn the loom over toward back center and make certain that the knock-off engages the now exposed tip of the knock-off finger and promptly knocks the loom off at a little beyond bottom center. Again throw the shipper handle into "on" position and, with the lay on back center, place a strand of filling under the filling fork. Push the shield into its lowest position and turn the loom over bottom center to make sure the filling now causes the knock-off to be held free of the knock-off finger.

WASHINGTON LETTER

From TEXTILE WORLD's Washington Office

FINANCING THE FARM SUBSIDY is tougher this year than ever before. When President Roosevelt dared anybody to balance the budget, he abdicated his fiscal throne in "favor" of Congress, which is finding it a mighty hot seat. The usual demand of growers for help is squarely confronted this time by a public demand that increase of the unprecedented debt be halted. Our 531 law makers on Capitol Hill are jumping like fire-horses to please those who make the loudest noise. So their handling of budgetary matters is unpredictable.

Congress voted $225,000,000 farm parity in 1939, and $212,000,000 for 1940. Now the appropriations committee, taking up the Department of Agriculture's 1941 supply bill, follow the lead of the President's budget and vote *nothing* for parity. Most remarkable lapse of logic, in the opinion of observers—including Secretary Wallace—was the cutting out of $72,000,000 for surplus crop removal. This despite almost unanimous agreement by press and public that the food stamp plan is a successful attack on surplus production.

Congress has before it three alternatives. It can vote a parity fund of any size directly out of treasury; it can put Wallace's certificate (processing tax) plan on manufacturers who then would pay the parity direct to growers; or it can refuse both and set up a new liberal loan program.

Processing tax seems headed for defeat, in the opinion of tax authorities here. Congress fears to make "spending" news by over-riding the budget, but Senate may hold up agriculture bill while defense and other appropriations are being trimmed, and then vote the saving to farm parity direct from Treasury.

Head man of the Wage-Hour Division, Col. Philip Fleming, is keeping out of the news to keep out of trouble. His press office gives out information but little headline material. There has been no complaint here against Fleming, by Congress, by the press, or by visiting business men. . . . He apparently is attempting to satisfy those who want changes in the law by administrative order, keeping the issue out of Congress, where a row would certainly ensue. The Farm Bureau Federation, which wants farm produce processing exempt, sees difficulty getting such an amendment through the Senate, and is talking compromise with Fleming, who could re-define the "area of production". . . . He has offered to hold hearings on the question of exempting salaried employees from the hours provision, but employers are showing little interest. . . . The President, authorized to do so by Congress, has just given Col. Fleming the full title of Administrator.

As expected by attorneys of the Division, counsel for southern cotton manufacturers, led by Opp Cotton Mills, petitioning for stay of the 32½¢ textile wage order, has secured a postponement of hearings before the Fifth Circuit Court to Feb. 28. . . . Review of the Division's order on employment of learners in textiles has been granted, and briefs may be submitted until close of business Feb. 23; briefs in rebuttal till Mar. 8. . . . Briefs will be received on the 35¢ wage recommendation of Knitted Outerwear Committee till 4:30 p.m. Feb. 20. This recommendation had unanimous support in a public hearing Jan. 23. . . . Closing briefs on the Knitted Underwear and Commercial Knitting Industry's recommendation of a 33½¢ wage was held 4:30 p.m. Feb. 15. At a public hearing Jan. 15, no person appeared in opposition. . . . Filing of briefs on a review of the Division's order regarding employment of learners in the Knitted Wear Industry (other than hosiery) has been postponed from Jan. 15 to Feb. 15.

Confusion as to NLRA amendment will get worse before it gets better. The House Labor and Senate Commerce Committees are both starting investigations, and if the Smith special committee doesn't wind up soon, that will make it a three-ring circus. Senator Wagner, author of NLRA, is reported writing his own amendments, which he would throw in to distract attention and prevent action this session. The President also can forestall a Congressional row, very bad in election year, by making changes in the board personnel. Some thoughtful leaders are eyeing the admirable record of Dr. John R. Steelman's Conciliation Service (Labor Department) as key to peaceful industrial relations.

The cotton stamp plan, practically identical with the food stamp plan already in operation, offers cotton goods to relief families at the rate of $2 for every $1 spent. Small cities will be selected for initial experiments. The Surplus Commodities Corp. (of Agriculture) in charge, is also buying cotton to make mattresses for WPA relief distribution, and is seeking other cotton outlets. It has enough money to carry through fiscal 1940 regardless of Congressional appropriations.

Extension of the trade agreements law, which expires June 30, was opposed in Congressional committee hearings by the National Association of Wool Manufacturers and by the National Association of Cotton Manufacturers. Observers here see a close vote ahead on the Administration's bill which would give the President three more years to negotiate agreements in addition to the 22 treaties already signed. Existing treaties could run on indefinitely, even if the bill fails or if Congress passes the issue by declining a record vote. Some kind of compromise may be made under which assurances will be given that the law will be equitably administered.

How silk may be affected by continuation of the oriental war and by expiration of the U.S.-Japan commerce treaty depends, most uncertainly, on many considerations. Japan is thinking of placing a limit on domestic silk consumption to free more for export, and possibly fixing the export price, or setting a maximum price.

Wool products labeling is still pending in the Schwartz-Martin bills, passed last session by the Senate and reported favorably to the House by its Commerce Committee. But attention is being deflected from this legislation to the Boren bill, which would authorize the Bureau of Standards to set up standards in various consumer lines.

The cotton export subsidy was reduced to zero on Jan. 30. Suspension, except on cotton products, was necessary, as commitments were nearing the total money available. Remaining funds are sufficient to subsidize export of cotton products equivalent to about 70,000 bales. Total sales and deliveries of cotton and its products under the program, which started last July 27, was 6,214,000 bales, 330,000 bales of which was fabricated. This compares with 3,327,000 bales of lint cotton exported in the 1938–39 market year. The subsidy program is generally regarded as a success, but it is not likely that any funds will be voted to continue it. There is a move to take the Farm Credit Administration away from Agriculture; anything might happen.

NEWS OF THE MONTH

Oppose Trade Treaties

The textile industry was decidedly articulate in opposition to the Administration's proposal to extend the reciprocal trade agreement act at the public hearings before the House Ways and Means Committee Jan. 31.

Arthur Besse, president of the National Association of Wool Manufacturers, and Russell T. Fisher, president of the National Association of Cotton Manufacturers, spoke for their divisions of the industry. Attacking the claim that the trade agreement act has advanced the cause of world peace, Mr. Besse said: "The sooner we admit that world peace is not to be won by means of world trade, and realize that foreign markets are going to purchase from us those products they need and can buy from us more cheaply than from others, rather than the products we hope to sell because we have an excess, the better off this country will be."

Confining his discussion to the fine goods mills in New England only, Mr. Fisher pointed out the potential danger threatening the fine goods industry as soon as conditions in the English cotton industry become normal again, and concluded: "Any trade agreement reducing the tariff on cotton goods will, under normal conditions, add materially to the importation of fine cotton yarns and cloth."

Wool Wage Hearing

The long-delayed public hearing on the recommendation of the Wool Industry Committee under the wage-hour law opened Feb. 5 and turned into an inter-industry debate on the definition. There was no protest that the 36c minimum wage recommended would cause "substantial curtailment of employment." The argument centered around the cotton-wool demarcation definition. As finally set by Administrator Andrews, it allowed the manufacturer of cloth up to 25% wool, and yarn up to 45% wool to work under the cotton wage rates.

Thurmond Chatham, head of the Chatham Mfg. Co., said that cotton and rayon mills are producing blankets not in excess of 25% wool content, and paying wages as low as 32½¢ an hour. Woolen mills making the same line in competition can pay not less than 36¢ if the order is approved. Mr. Chatham said he would prefer the 36c minimum rather than have the recommendation disapproved. But attorneys had told him the administrator can legally change the definition.

Dr. C. T. Murchison, president of the Cotton-Textile Institute, termed the proposed definition change as "highly subversive." He read figures placing the average hourly wage rate in cotton-textiles in August, 1939, at 38.4c. an hour, and for December, 1939, (after the 32½c wage order) at 41c an hour. The average hourly wage rate in the woolen industry, he said, was 52.9c for August; 52.7c for December. He called attention to the fact that the actual wage differential between wool and cotton was 12c, or far greater than the 2½c differential in the minimum wage rates recommended by their respective committees. Briefs may be filed up to Mar. 5.

Mississippi's "Bawi" Results

When Governor Paul B. Johnson of Mississippi was inaugurated on Jan. 16, he announced that Mississippi's "balance agriculture with industry" program, inaugurated by Governor White three years ago would have to be amended or abolished. Net result of the program in three years: It brought to the State only 10 plants, five of which are hosiery mills and two others are devoted to garment trades.

Cotton Movie Shown

Sharing honors with Thurman Arnold, Assistant Attorney General, at the dinner at the Waldorf-Astoria Hotel, New York, Jan. 5, under the auspices of the National Council of Textile Industries, was the cotton motion picture, the script of which was written by M. D. C. Crawford, research editor of Fairchild Publications. The picture is sponsored by the cotton-textile industry and produced by Columbia Pictures Corp. It was shown for the first time to those in attendance at the dinner for Mr. Arnold. The picture is an excellent example of public relations, is beautifully done in technicolor, and shows various stages in the life of cotton from the first planting, through the mill, and into fashionable garments. It should be of interest to the layman who knows little if anything about the intricate processes of cloth manufacture.

ACMA to Meet At White Sulphur Springs

The annual convention of the American Cotton Manufacturers Association will be held at Greenbrier Hotel, White Sulphur Springs, W. Va., April 25 and 26. This is the first time this association has met at White Sulphur Springs.

Cotton Council's Accomplishments

National Cotton Council's headquarters in Memphis, Tenn., issued its first annual report on Jan. 1. Among its accomplishments during 1939 the Council listed: (1) raising a fund of $125,000 for promotion of cotton products through advertising; (2) developing a new floor sweeping compound

New Textile Building of N. C. State College, Raleigh, N. C., recently completed at cost of $300,000. Equipment formerly in Tompkins Hall has been transferred to it, and new manufacturing equipment and testing devices installed.

from cotton-seed hulls; (3) making further research as to practicability of cotton highways; (4) getting the Mississippi State officials to rule that cottonseed oil shortening may be used on an equal basis with lard products—a controversy of long standing.

Print Cloth Committee Posts Bond in FBI Case

The committee of five textile manufacturers representing the print-cloth group of the cotton textile industry have posted bond in connection with the charges of violation of the Sherman Anti-Trust Act brought against the industry some time ago by the Department of Justice. The case is expected to come up in the April term of the U. S. District Court for the Western district of South Carolina, at Greenville, S. C. It is understood that this case will be fought on its merits by the manufacturers regardless of the outcome of the Madison, Wis., oil case now pending before the Supreme Court.

Through a regrettable error, an item in these columns last month mentioned W. G. Sirrine as one of the five men in the print-cloth branch of the industry against whom the above charges had been filed. The reference, of course, was to J. E. Sirrine, of J. E. Sirrine & Co., Greenville, S. C.

U. S. and N. C. Cooperate on Wage-Hour Law

The first cooperative agreement signed by the Federal Wage-Hour Administration is now in process of operation in North Carolina. Seventeen State labor inspectors started, on Jan. 15, enforcement of the wage-hour law, working from headquarters at Greensboro, Fayetteville, Raleigh, Greenville, Salisbury, Charlotte, and Asheville. North Carolina Labor Commissioner Forrest H. Shuford announced assignment of inspectors to territories and emphasized that the inspectors are working for the State and not for the Federal Government.

Wool Workers to Widen Wage Increase

The Woolen and Worsted Division of the Textile Workers Union of America is planning to bring pressure upon those mills which have not followed the example of the market majority in announcing 7 to 10% wage increases effective early in February. It was said that 75% of the industry was covered by the wage increases announced before the end of January. The Union, it is said, will interest itself in the remaining 25% and resort to strikes if necessary to make the wage increase industry-wide.

Improved Elastic Yarn For Full-Fashioned Hose

An improved Controlastic yarn developed for the hosiery trades has been announced recently by Firestone Rubber & Latex Products Co., Fall River, Mass. This yarn, which is fine enough to operate on the fine-gage full-fashioned hosiery machines, is of multi-ply construction—each strand being composed of many wrapped layers of latex. This feature is said to give the new yarn the strength necessary to stand up under the hard wear that hosiery receives. A special feature of the improved yarn is its lack of fuzziness. The yarn is wound evenly and without tension so that it will feed into the machine—without lubrication—direct from the package. Elasticity of the improved Controlastic is maintained at about 125% in the single thread, to give the necessary stretch in the finished hosiery top without danger of the yarn kinking up in operation.

TEXTILE CALENDAR

Philadelphia Textile School Alumni Association, annual banquet, Philadelphia, Mar. 1, 1940.

Committee D-13, A.S.T.M., spring meeting, Charlotte, N. C., March 13 to 15, 1940.

Phi Psi Fraternity, 37th Annual Convention, Bellevue-Stratford Hotel, Philadelphia, April 11 to 13, 1940.

Knitting Arts Exhibition, 36th annual exhibit, Commercial Museum, Philadelphia, April 15 to 18, 1940.

American Cotton Manufacturers Association, annual convention, Greenbrier Hotel, White Sulphur Springs, W. Va., April 25 to 27, 1940.

National Cotton Week, May 17 to 25, 1940.

American Society for Testing Materials, annual meeting, Atlantic City, N. J., June 24 to 28, 1940.

National Safety Congress, Stevens Hotel, Chicago, Oct. 7 to 11, 1940.

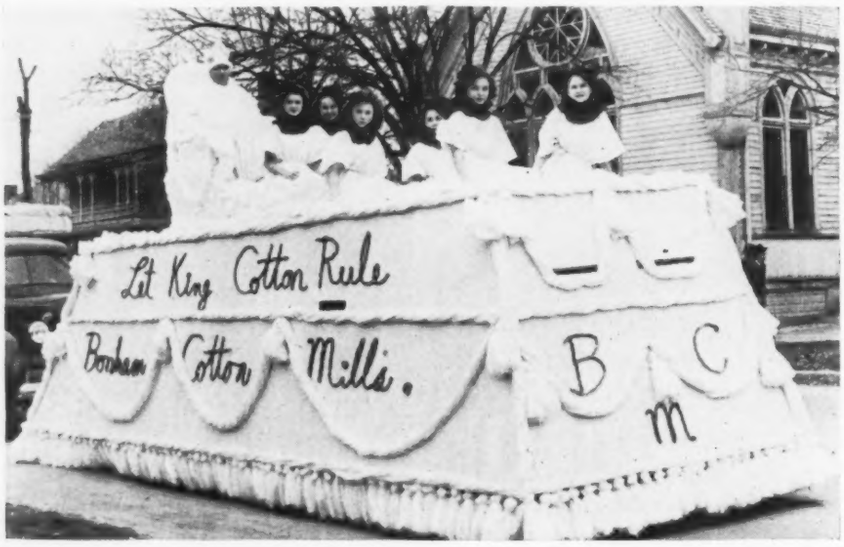
American Association of Textile Chemists and Colorists, 20th annual meeting, Hotel Commodore, New York, Oct. 18 and 19, 1940.

Southern Textile Exposition, Textile Hall Greenville, S. C., March 31 to April 5, 1941.

Southern Council Meets

The Southern States Industrial Council held its seventh annual meeting in Atlanta, Ga., Jan. 29. E. J. McMillan, retiring president of the Council, urged support of amendments to the National Labor Relations Act which would outlaw coercion of workers by the employer or by the Labor Group. He also stressed that the South should have a recognized wage division in order to compete with the northern and eastern manufacturers. Congressman Robert Ramspeck, who frequently in the last few weeks has stated his opposition to the NLRA, told the 200 industrialists attending the Council that the act had been unfairly administered and suggested that the present three-man board should be replaced with a five-man board selected by geographical regions.

C. C. Sheppard of Clarks, La., was elected president of the Council succeeding Mr. McMillan. Other officers



Bonham (Tex.) Cotton Mills won first prize with this float promoting use of cotton in the Yule Parade at Bonham.

elected were as follows: Vice-presidents: Donald Comer, Birmingham, Ala.; John U. Barr, New Orleans, La.; E. W. Palmer, Kingsport, Tenn.; Howard I. Young, St. Louis, Mo.; and Thomas J. Wallner, Pulaski, Va. Samuel L. Durham, Louisville, Ky., was elected treasurer, and Charles C. Gilbert, of Nashville, Tenn., was reelected secretary and assistant treasurer. The executive committee named included Fitzgerald Hall, Nashville, Tenn.; Charles F. Stone, Atlanta; E. J. McMillan, Knoxville, Tenn.; and Kemp P. Lewis, Durham, N. C.

Charlotte Engineers Club Holds Annual Party

James F. Lincoln, president, Lincoln Electric Co., Cleveland, O., addressed the Charlotte Engineers Club at the annual dinner party at Myers Park Club, Thursday night, Jan. 12. Mr. Lincoln stressed the need of clear thinking along economic lines, and vigorous action in political circles if American democracy is to be saved. Some 200 members and guests were present. Officers for the coming year were installed. They are as follows: Roy Palmer, president; Geo. O. Bacon, vice president; W. B. White, secretary; C. N. Underwood, treasurer. The new directors are H. H. Hill, C. B. Brown, W. W. Hanks, E. W. Clark and M. G. Townsend.

Discuss New Fibers and Finishes at NRDGA

Chemistry's role in merchandising was discussed at the 29th annual convention of the National Retail Dry Goods Association held last month in New York, by a group of speakers including Ephraim Freedman, director of the Bureau of Standards, R. H. Macy & Co.; Dr. Harold DeWitt Smith, of A. M. Tenney Associates; Alexis Sommaripa of the Rayon Division, E. I. du Pont de Nemours & Co.; Dr. Donald H. Powers, of Rohm & Haas Co.; E. M. Edgerton of Pacific Mills.

N. C. Alumni Meet at Charlotte

A well attended gathering of State College Alumni was held Jan. 12, at the Chamber of Commerce rooms, Charlotte, N. C., to honor the dean of textile engineering, Thomas Nelson. Dean Nelson gave a brief résumé of the activities and growth of the textile department from 1901 when there was one graduate through to 1940 when some 65 well-trained textile men will be available for positions of responsibility and trust in the industry.

TEXTILE MILL SIDELIGHTS—No. 14

"As my new sales representative, I expect you to cover the country with my underwear!"

S.T.A. Meetings

Southern Textile Association will holds its annual convention during the second or third week in June at Blowing Rock, N. C. The Gaston County Division will meet March 15 at Gastonia, N. C.; Piedmont Division, March 30 at Charlotte, N. C.; South Carolina Carders and Spinners April 13 at place to be selected; Eastern Carolina, April 27, at N. C. State College, Raleigh, N. C.; Northern North Carolina Virginia, May 11, at place to be selected; South Carolina Weavers, May 25, at place to be selected. Plans for Northern and Southern Master Mechanics meetings will be announced later. Ellis Royal, secretary, has announced that the State board of directors had approved the Southern Power & Engineering Show to be held in the week of Oct. 8 at Charlotte, N. C., at which time at least two divisions of STA will meet in Charlotte.

Piedmont Chemists Hold Winter Meeting

The Piedmont Section of the American Association of Textile Chemists and Colorists held its winter meeting Feb. 10 at Greenville, S. C. Dr. J. S. Long, director of research, Devoe & Reynolds Corp., was scheduled to speak at the banquet which followed a series of technical papers during the afternoon session. H. E. Kieffer, Jr., purchasing agent, Ware Shoals (S. C.) Mfg. Co., is chairman of the section. M. R. Pickler, of Piedmont Plush Mills, Greenville, was in charge of arrangements.

Textile Associations Elect Officers

Officers of the National Association of Finishers of Textile Fabrics chosen last month are: John W. Manley, 1st vice-president; H. R. Gessner, 2nd vice-president, and Miss Alice C. Moore, secretary-treasurer (re-elected).

New officers of the Textile Division of the American Society of Mechanical Engineers are: R. DeVere Hope, chairman; A. D. Asbury, vice-chairman; W. B. Heinz, secretary.

New officers of the National Textile Processors Guild are Harry E. Kenworthy, president; Horace T. Greenwood, Jr., vice-president; and Harold Korzenik, secretary and treasurer.

Cape Wools Make Headlines

During the four months following the start of the war with its involvement of the Australian wool clip, American wool users have been heavy buyers of

fine wools in South Africa. Trade estimates place total purchases at about 50,000,000 lb. in the grease, and large quantities are now arriving. Although this would seem to relieve the pressure on the finer territory wools, the fact more recently reported that Canadian manufacturers are buying South African wools on the Boston market, gives a new aspect to the matter and may cause revision in outlook.

Carpet Group Approves Closed Showroom

The Institute of Carpet Manufacturers of America, at its annual meeting, expressed approval and support of the practice of manufacturers and wholesalers maintaining "closed" or "controlled" showrooms. The "closed" showroom is confined exclusively to the use of actual buyers of carpets and rugs for resale to the consumer. In the "controlled" showroom, it is stipulated that if other parties than the actual buyers just mentioned use the showroom they must be accompanied personally by a retail dealer or his sales representative.

John A. Sweetser, president of Bigelow-Sanford Carpet Co., and Harold E. Wadley, president of Firth Carpet Co., were re-elected to the board of trustees and Frank Beattie, president of Beattie Mfg. Co., was elected to that board. Peter P. Hagan, president of Charles P. Cochrane Co., was elected chairman. Herbert Gutterson was re-elected president and Leroy Beers vice-president.

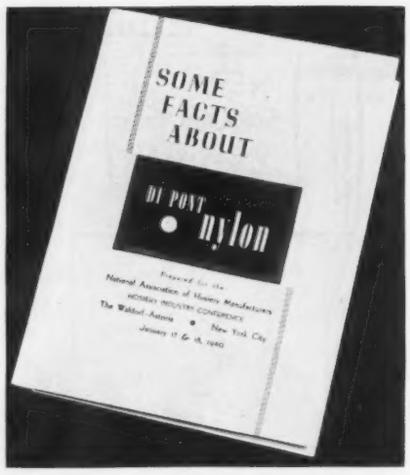
Rhode Island Textile Assn. Comes of Age

The 21st birthday party of the Rhode Island Textile Association held in Providence, R. I., Jan. 22, brought together more than 250 textile officials for an evening of entertainment. Robert L. Anthony, president, made the only speech and that was a short one of greeting.

R. H. I. Goddard was the first president, elected in 1919. His successors have been: F. E. Richmond, Theophile Guerin, William F. Pepperell, Frank F. Woolley, George P. Newell, Frank Richmond, David Duncan and Robert L. Anthony. All are living with the exception of Mr. Newell and Mr. Duncan. Edward F. Walker is secretary-treasurer of the Association.

A Boost for Woolknits

A style show engineered by June Hamilton Rhodes on behalf of the Woolknit Associates, held at the Ritz-Carlton, New York, on Jan. 17, displayed over 50 costumes for spring, to an audience of nearly 500 buyers, stylists and manufacturers. It was part of a campaign to develop volume knitwear business, particularly in wool goods, and was supported not only by knitted outerwear manufacturers, but by woolen and worsted spinners.



Comprehensive booklet on Nylon prepared by DuPont Company and distributed at recent Hosiery Industry Conference in New York.

Rayon Promotion Marches On!

An extension of its already large promotional campaign is being undertaken by American Viscose Corp. this spring. Strong retail emphasis and retail sales pressure are outstanding characteristics.

American Bemberg Corp. is distributing the latest issue of its "Sketch Book" showing offerings from leading Fifth Avenue stores made of Bemberg fabrics for both southern and northern wear. Indication of the serviceability, washability and color fastness of some of these fabrics is certified by a testing company.

Nashua Mfg. Co. is publicizing a patented blanket called "Purrey" made of spun-rayon with very small admixture of wool. Wellington Sears Co. has a spun-rayon corduroy.

Pee Dee Mfg. Co., Rockingham, N. C., makes the news with a novel boiler arrangement. When it became necessary to disconnect its 80 hp. boiler in order to install a new one, a 30-day job, it was found the 200 hp. boiler left was not sufficient to operate the mill. Bill Newell, superintendent of the Rockingham Railroad, came to the rescue with one of his locomotives. The engine was run on a spur track close to the plant, the whistle taken off, and a 2-inch pipe connected. The engine's boiler was fired up and the plant operated at normal capacity again.

Fashion Group Holds Swatch Show

The Fashion Group, New York, held a "swatch survey" luncheon on Jan. 18 at which representative sample collections of cottons, woolens and worsteds, rayons, silks, linens, and laces were presented. The wool goods came from twelve leading houses and ran the gamut in colors, weights and textures. A grayish, chalky treatment of the colors was typical.

The cotton fabrics included woven fancies, chambrays, seersuckers, ginghams and sheers, with "native" patterns prominent in many lines. Rayons were well represented. Dull textured clothy effects predominated whether the material was from filament or cut-staple rayon. A well-styled collection of silks from 35 different sources was presented, and a group of costume linens shown.

American Woolen Profit

American Woolen Co. has reported a net profit for 1939 of $2,311,887 against a net loss for 1938 of $4,911,502. Net sales for 1939 totaled $64,935,976, an increase of 54% over the $42,038,076 volume in 1938. Inventories at end of year amounted to $29,819,636 for 1939 against $22,320,953 for 1938. Cash expenditures for machinery and equipment were $564,681 in 1939 against $431,567 in 1938. Annual meeting is March 26.

D-13 to Meet at Charlotte

Committee D-13 of the American Society for Testing Materials will hold its spring meeting at Charlotte, N. C., March 13 and 14. Sub-committee meetings and technical-paper sessions will be held on both days, and a general business session on the second day. An informal banquet will take place March 13.

Botany Foremen Dine

The Botany Foremen's Association held its 12th annual dinner at the plant in Passaic, N. J., last month. It marked the formal opening of the company's new cafeteria and attendance was about 1,000. Colonel C. F. H. Johnson, president of Botany, reported that 1939 was the best year the company had had in a decade and that they were going into the new year with $5,000,000 worth of business on the books. A. D. Whiteside, president of Dun & Bradstreet, complimented Colonel Johnson for the spirit which he had built up within his organization, stating that it was unique in his experience with American industry.

Cottons Hold Their Optimism

Although cotton goods in January went through several dull weeks, sellers are still optimistic. Numerous seasonal goods offered during January were snatched up quickly, and, as these are selling further into the future than are gray goods, they are regarded as showing fundamental confidence.

Osnaburg prices turned easier toward the end of the month when burlap broke on the British War Board's release of about 55,000,000 yd. monthly to the open market which previously had only 90,000,000 yd. available to it. Burlap prices receded to the levels current in mid-September.

Fall Wool Goods Ready

Advance season operations by large buyers have been reported for fall 1940 in men's wear, but the general opening is still unlikely before the second week in March. The meeting of the International Association of Clothing Designers in New York in January aided fabric stylists in completing their sample plans. Closer cooperation between clothing designers and fabric stylists is planned.

There has been a lull in spring goods. Clothing manufacturers enter the new year with fairly heavy inventories and a breathing spell results. A price dip early in January was apparently induced by pressure on the part of some mills to get business to bridge the gap between the end of the spring season and the start of the new fall season.

Hosiery Family Increases

A multitude of hosiery constructions have come upon the market during the last few weeks. They are conceived primarily as a means for maintaining popular prices despite the extravagant advance in raw silk. It is safe to say that all full-fashioned hosiery retailing for less than $1 will have welts, heels and toes reinforced with lisle or rayon, and there are several numbers in which the leg construction is no longer all silk but of a silk and rayon twist. These substitutions are said to cut the cost of hosiery from 60c. to $1.00 per dozen, and have already brought good buyer response. Large catalog houses are still quoting their silk numbers, with rayon welts and rayon-reinforced feet, at the low figure of 44c. Terry socks for men promise well among spring novelties.

Spun Rayon Holds the Cards

Reports that an unusually wide variety of spun-rayon fabrics is being sampled for the coming season is said to foreshadow further extensive expansion in this field. Especially is this true of the woolen and worsted-type fabrics. Fabrics of the dress linen type, done in spun rayon, are also said to be on the up.

Prices on Tennessee-Eastman's Teca fiber were reduced approximately 3c. per pound as of Jan. 1, based on economies of a further increase in production. The 3-, 5- and 8-denier Teca is now at 43c. for bright or dull in white, 45c. for tinted, and 53c. for spun-dye black. The 12-, 16- and 20-denier are 2c. higher than these prices.

Silk Is off Its High Horse

Even though some users of raw silk may be relieved that this material fell out at the $4 price range early in January, the uncertainty of its price level makes it undesirable material to many users. It was first real reversal of form for over a year. After the dip, prices firmed but fell below $3 in middle of February. Some authorities see a shortage of available silk for the first half of 1940, while others see a surplus. That Japan will make some effort to stabilize the price seems

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self-evident after the gyrations of 1939. There is some lack of confidence in the result, since the Japanese Government set up stabilization plans at various stages of the advance last year only to have them upset by domestic speculation.

Mills Busy on Rayon Fabrics

For a large part of January, mill operations on rayon fabrics were reported as running around 90% as compared with about 72% in January a year ago. The fabrics on which production is being pushed are twills and serges, although taffetas improved as the month progressed.

Although rayon-yarn producers expect that there may be a slackening in the weaving trade early in the second quarter, they look to the increased taking for hosiery reinforcement to make up the difference on the yarn end. The use of considerable fabric in the construction of new spring hats will be an added channel for rayon consumption this year.

Brushed Rayon in Underwear Picture

Brushed knit-rayon underwear has become an item of importance in the women's field. It makes a smart garment for winter sports and much of it is being sold in red to imitate the flannels of the '90s.

Since the men's division of the underwear market has been flourishing on novelties during the last season or two, it may be that brushed effects in rayon fabrics will spread to this field also. There has been some demand for knit tubing both in cotton and rayon, and prices generally are reported firm.

This and That

FIBERGLAS fabrics, made by Onondaga Silk Co., are now being offered by that concern for the curtain, drapery and bridge-table-cover trade.

STANDARDIZED garments have been launched in Italy, according to cabled reports. These garments involve increased use of staple fiber in conjunction with wool and cotton, both of which natural fibers come into Italy from overseas as imports. Similarly bed sheets and table cloths have been standardized on a staple and cotton mix basis.

TOLEDO, Ohio, entered the news recently because one of its residents bred silkworms from which she is knitting a silk sweater. It is said that the crop amounted to about 2 oz.

JULIUS KAYSER & Co. have announced a promotion of "Gone With the Wind" gloves for the coming spring and summer. Showing will be made Feb. 25 and deliveries begin April 1.

A. STEIN & Co. have introduced girdles and panties made of Nylon in conjunction with Lastex.

RAYONIER, INC., Fernandina, Fla., is getting its local pulp plant into operation, converting southern pine into raw material for rayon by the sulphite process. Edward C. Kline is resident manager.

THE NEW color fastness specifications of the National Association of Finishers of Textile Fabrics have been formally transmitted to the National Bureau of Standards with a recommendation for their adoption by that body.

A GAIN of approximately 70% of yardage of cotton fabrics Sanforized in 1939 over the previous year is the estimate made by Cluett, Peabody & Co., Inc., on the basis of preliminary reports from licensees. Eight new licenses granted during 1939 brought the total to 76. These companies now operate 163 Sanforizing machines, a gain of 27 over the previous year.

SPEAKERS at a meeting of the Southeastern Section A.A.T.C.C., held in Atlanta Jan. 27, were George O. Jones,

A 10-ft. Telegram—Archie Joslin, treasurer of Rock Hill (S. C.) Printing & Finishing Co., whose office is in New York, was surprised during the recent holiday period to receive a telegram of greetings from the mill employees. The telegram carried nearly 2,000 names. Mr. Joslin is shown above, back center.

Callaway Mills; and W. A. Stringfellow, Ciba Co. New officers of the section are: chairman, P. N. Collier; vice chairman, L. L. Bamberger; secretary, Curt Mueller; treasurer, Dr. A. R. Macormac.

FEDERAL TRADE COMMISSION issued proposed trade practice rules for linens on Feb. 13. A hearing, orally or by filing brief, will be held March 5 in Washington.

NEW JERSEY COUNCIL, Trenton, N. J., has reported that a New Jersey firm has been commissioned to make machinery to ship to France for manufacture of sandbag material out of cocoanut fiber. These bags are being used for air-raid defense instead of jute bags which it is said they outlast.

GRANITE TEXTILE MILLS, Midland Park, N. J., is making a new line of linens in novelty weaves such as were formerly imported from Czechoslovakia. The line is merchandised by Defender Mfg. Co., New York, with cooperation of Frank Kraus previously with a large firm in Czechoslovakia.

E. I. DU PONT DE NEMOURS & Co., Rayon Division, has risen to first place in volume of sales among the Du Pont 11 divisions. Organic Chemicals Division is in second place and Fabrics and Finishes in third.

CHILDREN trod the runway at Hotel New Yorker, New York, on Jan. 10 at a style show sponsored by *Parents Magazine*. Numerous fabric and garment houses cooperated. A new color called "young blue," a cornflower shade, was launched.

TEXTILE HIGH SCHOOL, 351 W. 18th St., New York, has announced that it will offer facilities beginning this term for an intensive one-year course in textiles for high school graduates. Instruction will be free of charge.

COLUMBIA UNIVERSITY, New York, opened its spring

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session of evening textile courses on Feb. 7. Sessions are held once a week for fifteen weeks in six different subjects. The college announces that a new course has been added to the group, beginning next fall, on the subject of "Merchandising and Marketing of Textiles," to be given by S. J. Kennedy, director of market research, Pacific Mills.

ISELIN-JEFFERSON CO., last month opened its third floor at the corner of Broadway and Worth Street as the "Household Textile Center," in which blankets, patchwork quilts, mattress pads, bedspreads, etc., will be shown.

STARTEX MILLS are packaging a line of kitchen towels in Pliofilm, a transparent material made from a rubber base. The Pliofilm bag offers a convenient food-storage receptacle for refrigerator use after the towel has been removed.

NATIONAL WOOL GROWERS ASSOCIATION, met at Casper, Wyo., beginning Jan. 22, to celebrate the 75th anniversary of its founding. The wool growers oppose extension of large national parks in the West, feeling it is an encroachment on grazing land. They also oppose the extension of reciprocal trade treaties when they expire next June.

CONE EXPORT & COMMISSION CO. sold up its line of heavy flannels produced at Minneola Mills through October, just one week after the lines were opened last month. The goods were priced on the basis of 21¾c. for the 2-yd. number.

ATLANTA TEXTILE CLUB began its second year Friday night, Jan. 5, in an evening devoted to pleasure. Some 60 members, with their wives, attended the dinner served in the Peachtree Room of the Ansley Hotel. The newly elected officers were present as hosts. They are: Robert A. McKay, of Wellington Sears Co., president, succeeding Garnett C. Robey, of Riverside & Dan River Cotton Mills, retiring president; H. C. Allen, Jr., of Sterling Textile Co., vice-president; and Harry McGinty, of J. P. Stevens & Co., secretary and treasurer.

TO CONSERVE dyes, British designers have been asked to introduce paler shades in both plain dyes and prints.

ARNOLD PRINT WORKS has recently introduced a new type of voile patterned by an applique process in which electricity is employed to make the applique fibers stand up. The new fabric is offered under the trade name Fibredown.

JOSEPH BANCROFT & SONS CO. has licensed the following companies to produce permanent-finish, washable, glazed chintz under the patents covering production of Everglaze chintz; Apponaug Co., Arnold Print Works, Clearwater Mfg. Co., Eddystone Mfg. Co., Pacific Mills, and United States Finishing Co.

A NEW METHOD of estimating pectin in cellulose fibers has been developed by Research Associates of the Textile Foundation at the National Bureau of Standards. The new method is based on the rate at which carbon dioxide is evolved when uronic acids are treated with a boiling solution of hydrochloric acid.

SCHEUER & CO., New York, are distributing the 1939 edition of their Comparative Textile Chart, which has been issued for many years. The cotton section includes, among other material, a price history of 64 x 60 38½" 5.35 print cloth covering the years 1930 to 1939, inclusive. The chart has established itself as a ready reference record for buyers and sellers alike.

THE INDUSTRIAL SOUTH continues to grow, according to reports from two typical manufacturing States. In North Carolina 90 new industries were established during 1939 and 129 existing plants, including 95 textile plants, built additions, according to the N. C. Department of Conservation and Development. For the second straight year, hosiery mills led in the gains with 25 new mills and additions to 38 existing plants. The number of employees added was 15,000 and the textile industry was responsible for most of these.

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Springs Mills at Half-Century Mark

Constant modernization the keynote

THE SPRINGS COTTON MILLS, with plants in four of South Carolina's towns, Chester, Fort Mill, Kershaw, and Lancaster, are celebrating the completion of a half-century of service and expansion, but continue to plan further expansion and modernization in a program of keeping ahead of the times.

Fifty years ago the original Springs plant at Fort Mill was started by Samuel Elliott White, with 200 looms. These were increased by Col. Leroy Springs to 6,900 looms, and under the management of Elliott White Springs that number has been practically doubled within the last eight years despite adverse legislation, economic upsets, and other disturbing factors.

A recent statement points out that during the last half-century the Springs mills have paid the cotton farmer $45,590,512.10 for cotton; the Federal Government, South Carolina, and the respective municipalities and school districts in which the mills are located, a total of $7,862,198.37 in

Airplane view of Lancaster (S. C.) mills of Springs Cotton Mills. Recent additions which make it one of the largest mills in the country are in the foreground.

taxes; to employees for wages and salaries, $28,864,097.62; and to affiliated staffs for wages and salaries, $2,876,781.41. And—that during these same years a total of 1,351,680,000 yd. of cloth have been manufactured in the Springs plants.

Following this statement came announcements of further expansions to be made by various Springs mills. A $400,000 addition to the Fort Mill plant is under way, and unless the York County tax is not abated will be continued. If the tax issue is not settled amicably the addition may be switched to the Lancaster plant. However, assuming that the differences between Mr. Springs and the York County officials are settled, the machinery will be in place in the Fort Mill addition not later than July 1, and will bring the two Fort Mill plants up to a total of 104,000 spindles, making them next in size to Lancaster. More than a hundred additional employees will be required, and houses for them will be built.

In the Eureka unit, at Chester, 400 new Model X looms have replaced the same number of Model E looms. These are for the manufacture of spun rayon and cotton materials. At this plant a new steam generator has been installed. The generator is of the latest tubular type and is capable of generating steam economically at a pressure of 800 lb. per sq. in. The equipment furnishes electricity for all the Springs plants in Chester, and is fired by pulverized coal.

It is said by some in the industry that Elliott White Springs is a rugged individualist . . . but the four towns in which his mills operate at full time and continue to expand year by year are mighty glad that he is.

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What about backwashing? With GARDINOL it's possible to backwash directly from the dyeing machines without previous rinsing. You speed up production and trim production costs.

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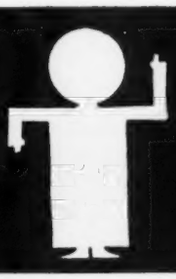

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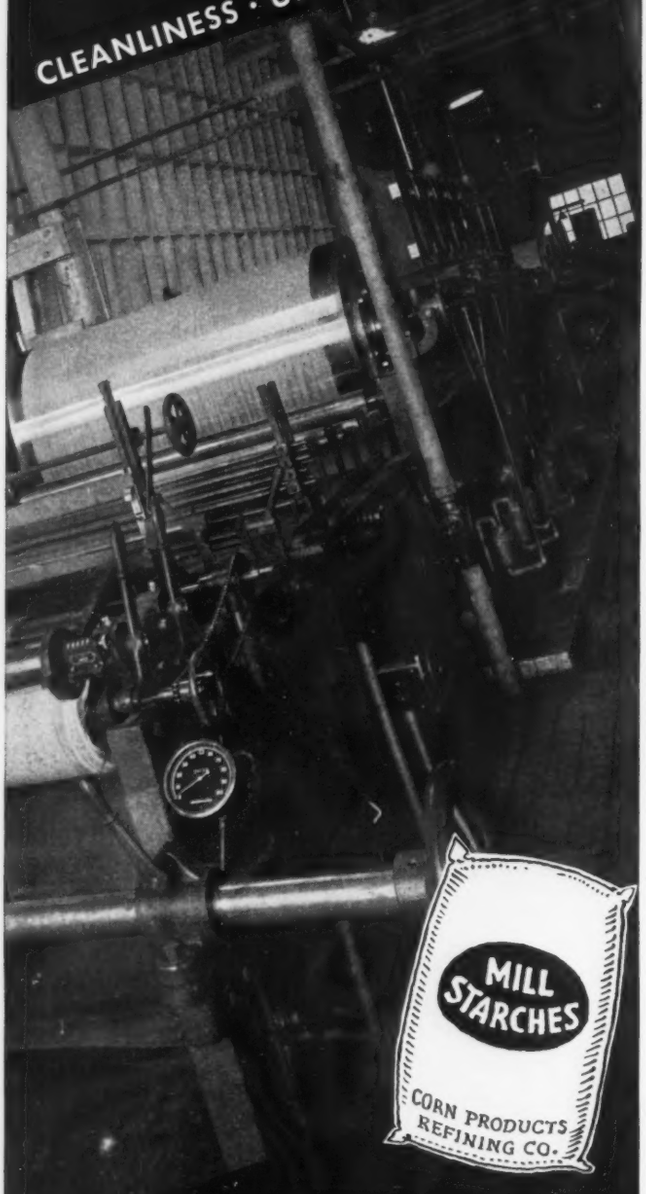

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Bliss Fabyan Discontinues Business

Closes 108 years in dry goods

THE DRY GOODS TRADE this month loses from its rolls the name of Bliss Fabyan & Co. On Feb. 1 the firm announced discontinuance of its business after a record of 108 years from formation of the original antecedent partnership in 1832. It will have no successor, and arrangements are already complete for future handling of all mill accounts previously served. For more than 60 years of its business life, the firm was located at 32 Thomas Street, New York, where it had been since the erection of the building.

The first partnership operated under the style of Parks, Wright Co. from 1832 to 1847, in which year it became Wright & Whitman. In 1863 the succeeding partnership became J. S. & E. Wright & Co.; this was modified in 1874 to Wright, Bliss & Fabyan, which in 1882 became Bliss, Fabyan & Co. In 1927 a corporation succeeded the partnership.

Over the years many illustrious merchants and famous mills were part of this organization. For some years the house sold the products of the old American Printing Co. until it left in 1910 to sell through a house formed to represent it. Pepperell Mfg. Co. was an important department over a long period. When Celanese was first introduced into the United States it was marketed by its sponsors in the form of fabrics and these were sold through Bliss, Fabyan & Co. The Alabama Mills were developed here and their products for some time were sold through the house. In recent years, through amalgamation with Haywood, Mackay & Valentine, a number of important mills came under the roof including Eagle & Phenix, Glencoe, Wennonah, Glen Raven, L. Banks Holt, Bradley Mfg. Co. and Highland Park.

In the older days the house sold for the Otis Co., which included in its group of mills the Columbian (which made the Otis denim), the Palmer, Ware and Boston Duck Co. Other names not to be forgotten are the Warren Cotton Mills of the Thorndyke Co., the Cordis Mill and the Morgan Mill. The house had for some years a knit goods department in which the underwear of the Otis Co. and the hosiery of the Lowell Hosiery Mills was sold.

For perhaps 80 years the name of Bliss, Fabyan & Co. was almost synonymous with those of Bates, Androscoggin and Edwards, which are now mills belonging to New England Industries, Inc., which have just set up their own agency.

Cornelius N. Bliss, son of Cornelius Bliss who joined the firm in 1874, retired from the corporation a number of years ago. Col. George Fabyan, son of George S. Fabyan, had retired at a considerably earlier date.

The final slate of officers includes Eustace L. Hopkins, chairman of the board; S. R. Glassford, president; R. D. Vanderbilt and R. D. Halliwell, vice-presidents and M. S. Black, treasurer and William Hansen, assistant treasurer. In the very recent past, T. Holt Haywood and S. L. Lewis had also been vice-presidents. The liquidation of the firm will be in charge of M. S. Black.

Cone
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This is a very particular cone. It is a cone with a destiny...a destiny such as very few cones achieve. Only a cone wound with the particular kind of rayon with which this cone is wound could *hope* to achieve it. For this cone is wound with Crown Rayon, which means that when that Rayon is woven or knitted, converted and finished it may bear the mark of Crown Tested Quality—providing it meets the rigid standards set by the Better Fabrics Testing Bureau, official analytical laboratory of the National Retail Dry Goods Association, for various points of consumer satisfaction.

And then it will be recognized and sought for by millions of consumers who like to be *sure* when they buy!

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NEWS ABOUT MEN

S. Robert Glassford, president of Bliss Fabyan & Co., now in liquidation, will become associated with Wellington Sears Co., New York, after completing his work on behalf of the former company.

Howard L. Shuttleworth, since 1930 vice-president of Mohawk Carpet Mills, Amsterdam, N. Y., has been elected to succeed his brother, the late Arthur W. Shuttleworth.

W. W. Couch is now executive assistant to **Henry Bryan,** president of Bryan Hosiery Mills, Chattanooga, Tenn.

R. G. Tolmie has been elected president of Canadian Cottons, Ltd., Montreal, to succeed the late A. O. Dawson.

Dr. J. M. Douglas of Davidson College, has been elected vice-president of Davidson (N. C.) Cotton Mills, to succeed the late J. F. Cannon.

Everett R. Cook, of Memphis, Tenn., chairman of the National Cotton Council's Committe on Scientific Research, led discussions on new uses for cotton at the Council's annual convention in New Orleans on Feb. 14.

William J. Mullen, in charge of the St. Louis office of Bliss, Fabyan & Co. for many years, has become associated with the sales organization of McCampbell & Co., and will shortly be attached to the New York office.

Martin J. Feld, of Novelty Knitting Mills, Philadelphia, was chairman of the committee in charge of the annual dinner of the Knitted Outerwear Manufacturers Association, Pennsylvania district, held at Warwick Hotel, Philadelphia, on Feb. 8, which marked the 20th anniversary of the founding of the group.

A. B. Carr has been elected president of Wilson (N. C.) Cotton Mills, to succeed **F. L. Carr.**

Frederick M. Feiker, executive secretary of the American Engineering Council, and consultant for the Textile Foundation on its program of research in textile education, has been made dean of the School of Engineering of George Washington University, Washington, D. C.

Charles Slaughter has been elected president of the Commodity Exchange, New York, for a second term. **Douglas Walker** is vice-president representing silk and **Adolph J. Borner** and **R. V. Z. Salembier** to the board of governors representing silk.

Hayden B. Kline, vice president in charge of plant operations, Industrial Rayon Corp. was awarded a certificate of merit as a Modern Pioneer for his development of a new process by which viscose rayon is spun, aftertreated, dried, and twisted in one continuous operation. This award was made at a dinner held in Cleveland, Ohio, on Feb. 7 in celebration of the 150th anniversary of the U. S. Patent Office.

Wm. P. Jacobs, secretary and treasurer of South Carolina Cotton Manufacturers Association and chairman of the Print Cloth Group, made the principal address at the Gastonia, N. C., annual Chamber of Commerce dinner, Jan. 30.

C. V. Garth has been elected vice-president of Highland Cordage Co., Hickory, N. C., and of A. A. Shuford Mill Co. and of Granite Falls Mfg. Co., all Shuford interests.

F. S. Stern, president of Great American Knitting Mills, Inc., Bechtelsville, Pa., has again been elected Burgess of this borough for 1940. This borough is known for its good management and at the January meeting all taxes were cancelled making it a taxless borough for the seventh successive year.

George Barron, of Cohn-Hall-Marx Co., New York, was elected president of the New York Chapter of the New Bedford Textile Alumni Association, at a dinner meeting in New York recently.

C. W. Hussey was elected president of the Memphis (Tenn.) Cotton Exchange on Jan. 10. **Russell C. Gregg** was elected first vice-president.

Clifford T. Brooks has become associated with the Howard E. Bishop Sales

move forward with TUBIZE *as* TUBIZE *moves forward with Fashion!*

Intensive research, planned development and sound expansion are moving Tubize Yarns forward into an orbit of ever-widening scope. Tubize Yarns for Fashion Fabrics now offer Tubize Dependability... presenting among other factors:

GOOD PACKING: Tubize Yarns come to you exactly as you yourself would specify...beautifully packed.

LOOM EFFICIENCY: Tubize Yarns are clean-running...being constantly improved in working efficiency.

UNIFORMITY: Tubize Yarns perform uniformly under actual working conditions of weaving, dyeing, etc.

CLOSE SERVICE: Although an important producer, the Tubize organization is smaller, closer coupled, more flexible. Your Tubize salesman is *your* responsible representative as well as ours.

WIDE ACCEPTANCE: The sales-force of the Tubize Certified Quality Plan...as a sensible, workable, constructive merchandising program...is known, established, accepted, wherever rayon fabrics are bought or sold.

FABRIC WEARING QUALITIES CHECK TESTED ☆ TUBIZE *tested quality* RAYON ☆ APPROVED BY AN INDEPENDENT TESTING LABORATORY

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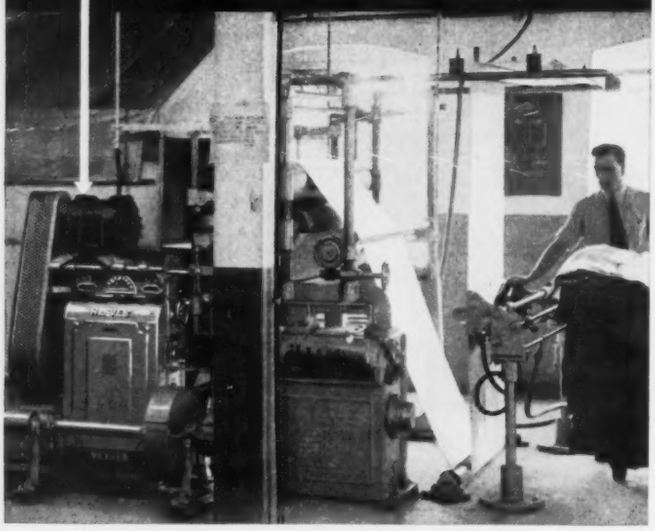
Fabrics, tagged and identified with the Tubize Certified Quality Seal, are pre-tested for service qualities in an independent testing laboratory.

THE TEXTILE INDUSTRY'S

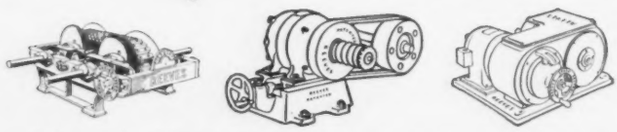
Approved Method

OF SYNCHRONIZING MACHINE SPEEDS...



REEVES transmissions were used exclusively throughout the experiments and developments which led to the perfection of sanforizing, and today leading builders of sanforizing equipment, as shown above, use REEVES transmissions to maintain uniform tension on cloth as it is fed from section to section—through feeding rolls, tenter frame, intermediate feed and finishing section. In fact, range finishing, as practiced in the industry today, is made possible by REEVES automatic control which synchronizes speeds of machines in the range and controls tension between sections. Write for Catalog G-384 describing these and other uses for REEVES Speed Control in the textile industry. REEVES PULLEY CO., Dept. W, Columbus, Ind.

THE 3 BASIC REEVES UNITS



Left to right: TRANSMISSION provides infinite speed adjustability over wide range, 2:1 to 16:1 inclusive; modern, compact, open and enclosed designs . . . VARI-SPEED Motor Pulley, simple, direct drive for requirements from fractional to 15 H.P.; 3:1 range . . . MOTODRIVE combines motor, speed varying mechanism and reduction gears.

Reeves

SPEED CONTROL

NEWS ABOUT MEN

Agency, New York, which is handling the business of the Maine mills of New England Industries, Inc. All his business life Mr. Brooks had been connected with Bliss, Fabyan & Co., until recently the selling agent for New England Industries, Inc., mills. **S. J. Tarjia,** who has worked with Mr. Brooks in the past, will be his assistant in his new connection.

C. P. Piall, plant superintendent of Winsted (Conn.) Hosiery Co. for many years, has been elected to the board of directors.

G. H. Waterman, until recently of Waterman, Currier & Co., Boston, has formed a new cotton yarn firm under the style of G. H. Waterman & Co., of which he is president. Offices are maintained in the Hospital Trust Building, Providence, R. I.

Albert J. Pfeiffer, who has been in the raw and thrown silk trades since 1905, has resigned from the Modern Throwing Co., New York, to establish his own office as a silk consultant.

Oliver Moses, Sr., treasurer for many years of the Worumbo Mfg. Co., Lisbon Falls, Me. has resigned.

Louis S. Fryer has been named production manager of the Industrial Rayon Corp., Cleveland, Ohio. He has been supervisor of plant procedures at Industrial since 1931.

Henry A. Rosenberg has been appointed assistant sales manager of Industrial Rayon Corp., Cleveland, Ohio. He has been with the concern for 14 years.

E. H. Lindsay, of Pequot Mills, has been elected president of the Association of Western Textile Representatives, San Francisco, Calif.

P. B. Luse, of Commercial Factors Corp., New York, has been elected executive chairman of the Uptown Credit Group, affiliated with the National Federation of Textiles.

John Warlick, at the annual meeting of Dudley Shoals Co., Granite Falls, N. C., Jan. 26, was elected a vice-president, filling the vacancy caused by the death of Will Poovey.

R. F. Craig, treasurer of Alba Twine Mills, Mount Holly, N. C., has been elected president, also.

Joseph L. Barnett was recently elected secretary of Dixon Mills and Trenton Cotton Mills, Gastonia, N. C. He succeeds **Kay Dixon,** who will retain the position of treasurer of both mills.

F. J. Moeckel, vice-president and director of Gotham Silk Hosiery Co., Inc., New York, has resigned. He was assistant to the president, and in charge of sales promotion, mail order division, advertising, display and publicity. He had been with the firm since 1928.

F. J. Moeckel

E. L. Winpenny has been elected vice-president of the Gotham Silk Hosiery Co., New York. He joined the company as sales manager in 1932 and was elected a director the following year. **Samuel B. Cummings,** treasurer for the last two years, was elected a director.

John W. Hobbs, of Toronto, has been elected president of Dominion Woollens & Worstds Ltd., Toronto, succeeding the late A. O. Dawson.

Eugene C. Myrick, of Myrick & Newman, New York, is retiring after 50 years in the finishing business. After many years with Silver Springs Bleach, Dye & Printing Co. and U. S. Finishing Co. he formed the firm of Myrick & Rice, one of the first independant agents for soliciting finishing. **Everett A. Newman,** his present partner, will continue the business.

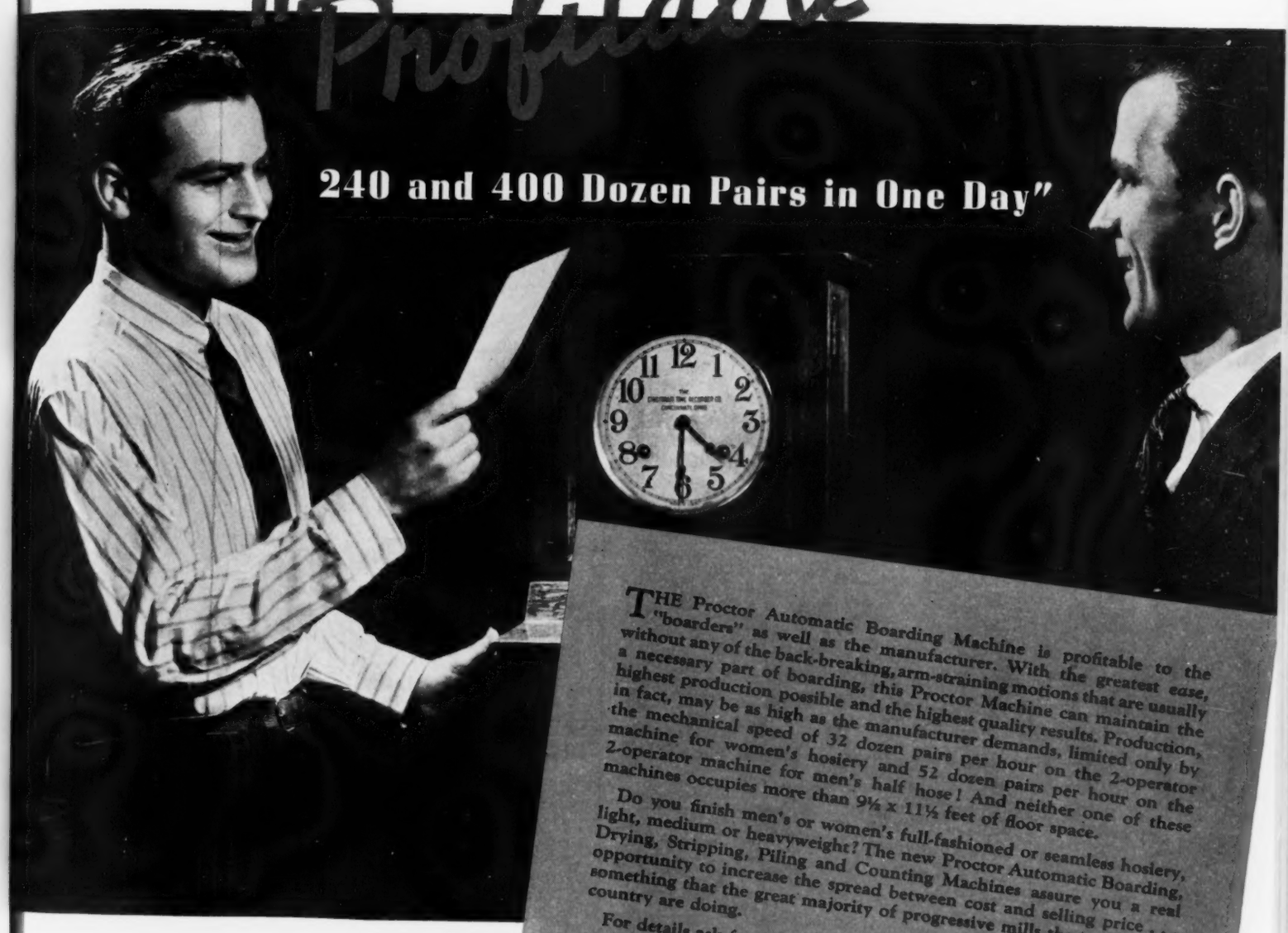
F. Gordon Cobb has been tentatively appointed director of the research on the warp sizing of spun rayon to be conducted at North Carolina State College Textile School under the auspices of U. S. Institute for Textile Research. The appointment is "tentative" pending completion of the financing of this cooperative research, but as the fund is nearly subscribed, the committee is proceeding with plans to start active work.

C. A. Davis, formerly associated with Marshall Field & Co., Leaksville, N. C., is now general manager and vice-president of Spencer Mountain Mills, Inc., Gastonia, N. C.

E. H. Darling has assumed his new duties as treasurer of

"Profitable—

240 and 400 Dozen Pairs in One Day"



THE Proctor Automatic Boarding Machine is profitable to the "boarders" as well as the manufacturer. With the greatest ease, without any of the back-breaking, arm-straining motions that are usually a necessary part of boarding, this Proctor Machine can maintain the highest production possible and the highest quality results. Production, in fact, may be as high as the manufacturer demands, limited only by the mechanical speed of 32 dozen pairs per hour on the 2-operator machine for women's hosiery and 52 dozen pairs per hour on the 2-operator machine for men's half hose! And neither one of these machines occupies more than 9½ x 11½ feet of floor space.

Do you finish men's or women's full-fashioned or seamless hosiery, light, medium or heavyweight? The new Proctor Automatic Boarding, Drying, Stripping, Piling and Counting Machines assure you a real opportunity to increase the spread between cost and selling price . . . something that the great majority of progressive mills throughout the country are doing.

For details ask for Bulletin 240.

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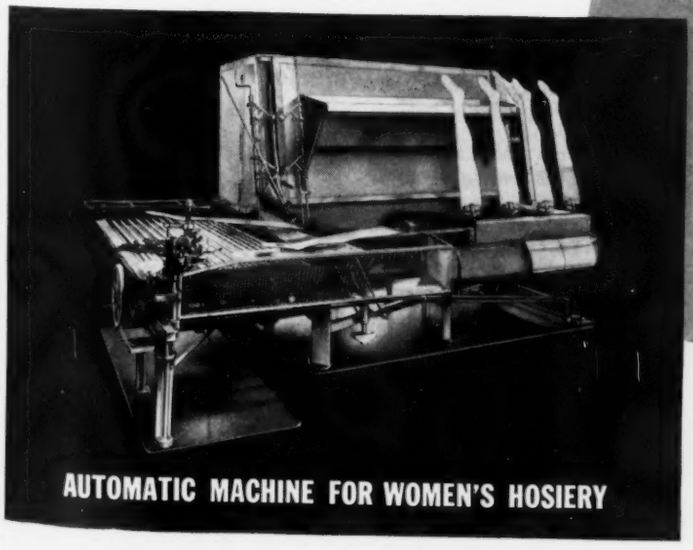
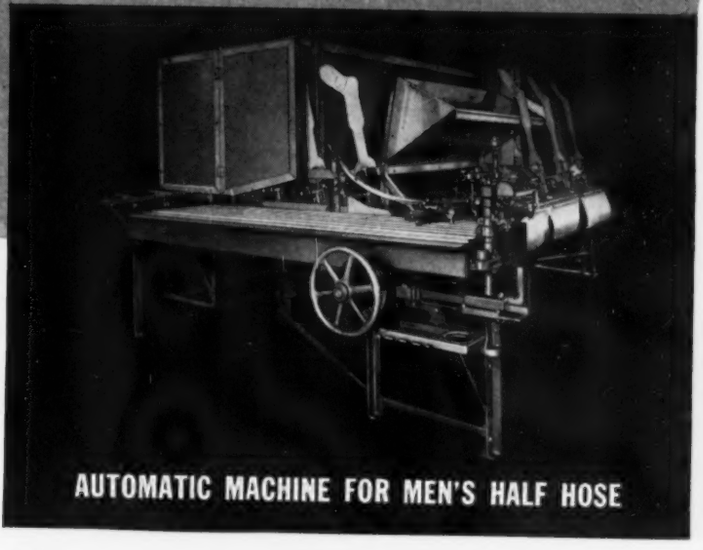


AUTOMATIC MACHINE FOR WOMEN'S HOSIERY



AUTOMATIC MACHINE FOR MEN'S HALF HOSE

Proctor & Schwartz BOARDING MACHINES

Not just close —but EXACT!

Dye mixing and shade matching require a lot more than a pair of excellently trained eyes. The material to be dyed, the chemical formulae of the dyestuffs *and the water* must be known quantities for perfect results . . . results that mean better fabrics, higher prices and the minimum of spoilage or redyes.

Water Treating Equipment that will furnish your dyeing and finishing departments with clean, iron-free, 100% soft water is a profitable investment from the very day it is installed . . . . There is various water purifying equipment on the market, but in the majority of America's *important* textile mills you'll find a better job being done by

HUNGERFORD & TERRY, INC.

WATER PURIFICATION SYSTEMS

To determine whether or not your water supply is causing you trouble and expense we will make an impartial survey without fee or obligation. If a purification plant is indicated our estimate of your requirements will be included in the survey. No "sales pressure" is included in H. & T. engineering service. Write us today.

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HUNGERFORD & TERRY, INC.

WATER PURIFICATION PLANTS DESIGNED
INSTALLED *and* GUARANTEED
CLAYTON, NEW JERSEY

the Saratoga-Victory Mills, Guntersville, Ala.

John G. Jackson, of the law firm of Jackson, Fuller, Nash & Brophy, in New York, was recently elected chairman of the board of American Viscose Corp., succeeding **Samuel A. Salvage,** resigned. **William B. Olmsted, Jr.** was elected to the board of directors, and **William H. Brown** was appointed treasurer, succeeding **C. E. Hendrixon,** resigned.

Dr. Otto Morningstar, graduate of Auburn and M. I. T., has joined the research staff of West Point Mfg. Co., Shawmut, Ala.

Irving J. Feinfeld has been admitted to the firm of Nehemiah Gitelson & Sons, New York.

R. J. Woods has been made treasurer and superintendent of Buffalo Mills, Stubbs, N. C.

L. W. Conover has become secretary and treasurer of Seaboard Silk Mills, Elberton, Ga., succeeding **Ed Frick.**

Bonner S. Mills, Jr., has become secretary of Elmore Corp., Spindale, N. C., succeeding **C. H. Reed,** resigned.

K. E. Gaffney has been elected secretary of Banning (Ga.) Cotton Mills, succeeding **C. P. Bache.**

Charles L. Kaufman has been elected secretary-treasurer of the Norfolk, Va. unit of Aberfoyle Mfg. Co.

S. A. Black, formerly with Kendall Co., Paw Creek, N. C. is now affiliated with Springs Cotton Mills Co., Chester, S. C.

Joseph A. Truitt and **Robert A. Smith** are now associated with the sales development department, American Viscose Corp., Marcus Hook, Pa., concentrating on spun rayon. Mr. Truitt will work with the carpet and other non-clothing wool goods lines. Mr. Smith will specialize on apparel fabrics of woolen and worsted type. Both men have had some years of employment in their respective branches.

Frederick H. Harjes, Jr., partner in the wool firm of J. G. Kitchen & Co., Philadelphia, completed 49 years of the wool business last month.

Harold D. Holmes, recently with Bliss, Fabyan & Co., has become associated with the fine and fancy goods department of the Southeastern Cottons, Inc., New York.

T. Oguchi, manager of the Shoye Raw Silk Co., one of the five largest filature operators in Japan, has recently been visiting the trade in New York.

William B. Terry, for the last 25 years associated with Julius Kayser & Co., New York, has been appointed vice-president in charge of sales and merchandising for the firm's Canadian subsidiary, Julius Kayser & Co., Ltd., with headquarters in Montreal.

F. L. Lewis, Jr., until recently a vice-president of Bliss, Fabyan & Co., New York, has joined the selling agency of H. E. Bishop, where he will handle sale of rayon products.

E. M. Rock, sales manager of the rayon division of Riverside & Dan River Cotton Mills, New York, has resigned.

Martin Himler has been placed in charge of sales to retailers, and to cutters-up outside of New York, of the Wechler Division of Duplan Silk Corp., New York.

Alec Forger, for many years credit manager for Julius Forstmann Corp., New York, has been elected secretary-treasurer of the corporation and a member of the board of directors.

William Stafford, for the last ten years superintendent of the Glenlyon Print Works, joined the organization of Algonquin Printing Co., Fall River, Mass. on Feb. 1 to assist the president **Jerome A. Newman** in the operation of the plant. **Charles Renner, Jr.,** has joined Algonquin as salesman for the southern territory with headquarters in Atlanta. Mr. Renner was formerly with M. C. D. Borden & Sons and Pacific Mills.

Lester Redman, recently with Merrimack Mfg. Co., is to be associated with the Boston office of Howard E. Bishop, selling agent for New England Industries, Inc.

C. A. Meister, Jr., has resigned from McCampbell & Co., New York.

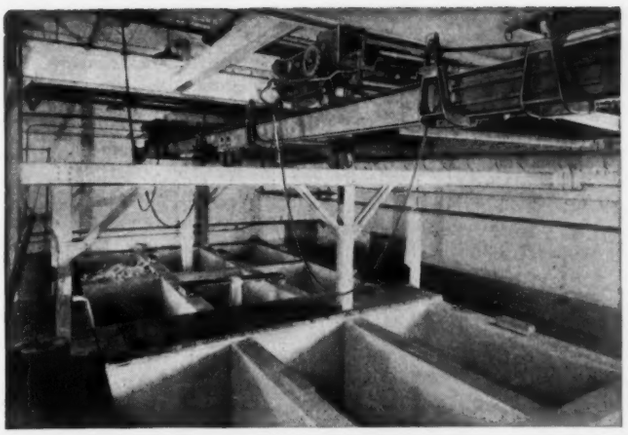
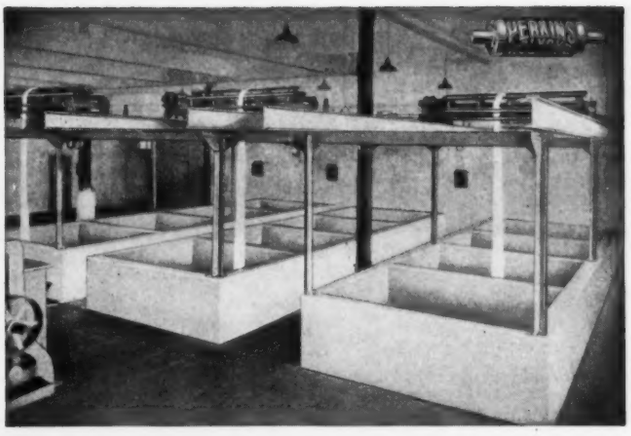
E. A. Weiller has been appointed manager of the Ruckel Mfg. Co., a department of Stonemill Fabrics Corp., New York.

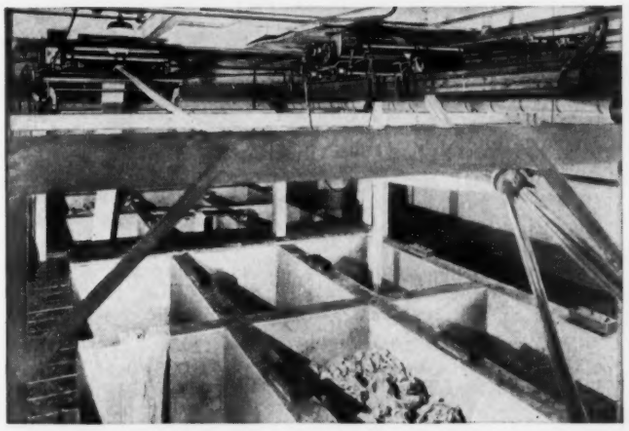
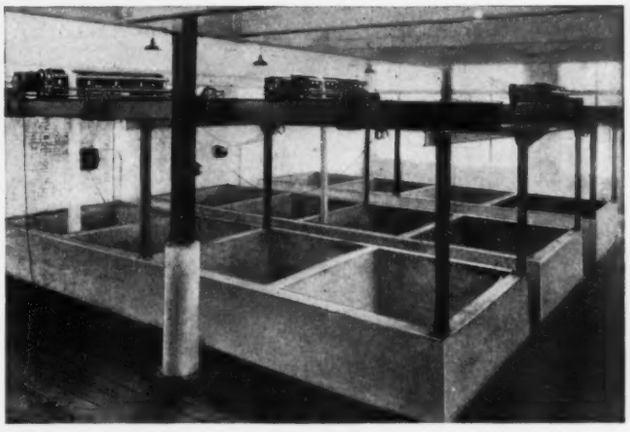
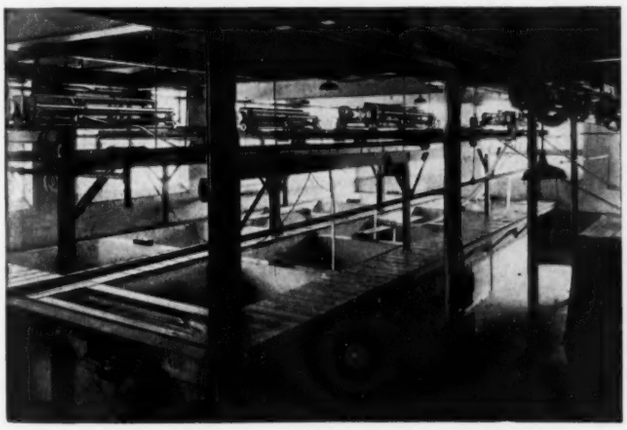
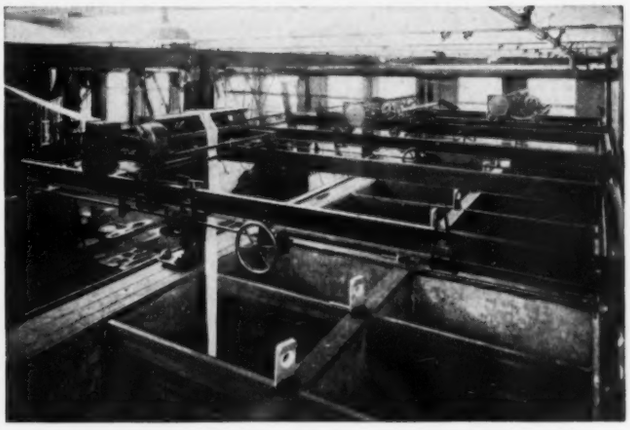
Reginald Waters has become associated with J. W. Valentine Co., New York, where he will style the colored-yarn fabrics of Wennonah Cotton Mills Co.

E. L. Warren, recently with Fred Whitaker & Co., Philadelphia, is now associated with Salter Mills, reworked wool, Saugus, Mass.

J. Leo Teller, formerly sales manager of Winship Boit & Co., has joined the sales organization of the Fort Schuyler Knitting Co., Utica, N. Y.

N. E. Nelson, for the last 13 years associated with the Chicago office of Bliss, Fabyan

PERKINS BIN PILERS. These automatic machines eliminate hand labor and losses due to soilage, and snarling or knotting. They pay for themselves in less than two years.

Typical Perkins Bin Piler Installations:—

Appleton Company.
Apponaug Co.
Arkwright Corporation.
Arnold Print Works.
Aspinook Corp.
Bellman Brook Bleachery.
Boott Mills, Inc.
Cannon Mills Co.
Chicopee Manufacturing Corp.
Clearwater Manufacturing Co.
Columbia Mills, Inc.
Cranston Print Works Co.
Crystal Springs Bleachery.
Dan River Cotton Mills.
Danvers Bleachery.
Defiance Bleachery.
Delta Finishing Co., Inc.
Dodgeville Finishing Co.
Dutchess Bleachery, Inc.
East Lyme Bleachery.
Erwin Cotton Mills Co.
Fall River Bleachery.
Glenlyon Print Works.
Hampton Co.
Johnson & Johnson, Inc.
Kerr Bl. & Fin. Wks., Inc.
Lewiston Bl. & Dye Works.
Lincoln Bl. & Dye Works.
Liondale Bl. & Pr. Wks.
Millville Mfg. Co.
Montreal Cottons, Ltd.
Mt. Hope Finishing Co.
Nashua Mfg. Co.
No. American Lace Co.
North Carolina Finishing Co.
Pacific Mills (Lawrence, Mass.)
Pacific Mills (Lyman, S. C.)
Pontiac Bleachery
Providence Dy., Bl. & Cal. Co.
Proximity Mfg. Co.
Quaker Lace Company.
Queen Dyeing Co.
Rock Hill Print. & Fin. Co.
Rockland Finishing Co.
Rosemary Manufacturing Co.
Sayles Biltmore Bleacheries.
S. Slater & Sons, Inc.
Slatersville Finishing Co.
Standard Bleachery Co.
Sterilek Co., Inc.
Stevens Linen Works.
Thomaston Bleachery.
Union Bleachery.
United States Finishing Co.
Utica Willowvale Bleaching Co.
Waldrich Bleachery.
Western Shade Cloth Co.
Wilkes-Barre Lace Mfg. Co.

B. F. Perkins & Son, Inc., Holyoke, Mass.

RAYON WEAVERS

A New High
IN QUILL CLEANING EFFICIENCY

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A New Low
IN QUILL CLEANING COSTS

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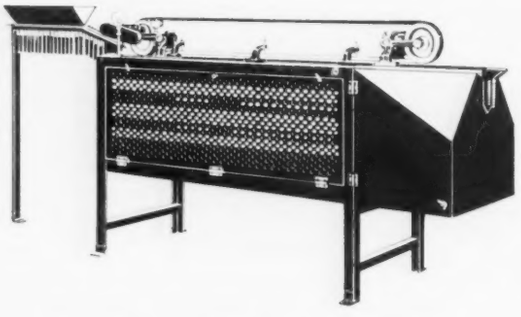
The New
TYPE L QUILL STRIPPER



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The **Terrell Machine Co.,** *Inc.*

CHARLOTTE, N. C.

REPRESENTATIVES

Luther Pilling, Danielson, Conn. — N. E. & Canada
E. W. S. Jasper, Elizabeth, N. J. — Penn. & N. J.
Geo. Thomas & Co., Ltd. — Manchester, England

NEWS ABOUT MEN

& Co., will hereafter represent Iselin-Jefferson Co., of New York, in Chicago.

C. Carroll Cooper, advertising manager of Bigelow-Sanford Carpet Co., Inc., New York, has resigned effective Mar. 1. He will be succeeded by **Carl Freyer,** his present assistant. Mr. Cooper plans inauguration of a merchandising and advertising service to manufacturers in the various branches of home furnishings.

Stuart W. Rabb, Sr., has relinquished his duties as manager of the Erlanger Mills and Nokomis Cotton Mills, Lexington, N. C., and is making his home in Greenville, S. C.

Cyrus Pyle, in charge of industrial engineering at the Waynesboro, Va., plant of E. I. du Pont de Nemours & Co., Inc., for the last five years, has been transferred to Wilmington, Del., to assume new duties in the technical division of the engineering department as a consulting engineer on distillation for all du Pont plants.

Walter T. Jenkins, general manager of Rock Hill (S. C.) Printing & Finishing Co., has been made a vice-president of the company.

W. P. Hamrick, general superintendent of Hampton division of Pacific Mills, Columbia, S. C., celebrated his 40th year with these mills on Jan. 10. He started with them as overseer of carding and has held his present position since 1914.

H. S. Walters, for the last ten years with Cohn-Hall-Marx Co., New York, has joined Everfast Fabrics, New York.

George Slifer, recently with Southeastern Cottons, Inc., New York, now has charge of the sales of products from Wennonah Cotton Mills Co. and Glencoe Mills with J. W. Valentine Co., New York.

James F. Grimes has been placed in charge of shirtings, sportswear and pajama fabrics of the Riverside & Dan River Cotton Mills, New York. **Jack Udis** will have charge of gray cloths to the converting trade.

Donal Murphy, recently with National Retail Dry Goods Association, has joined the Glenside Woolen Mills as director and assistant secretary and will be located at their New York headquarters.

J. E. Bradley has been appointed head of the Finished Rayon Fabrics Division of Pacific Mills which will be located at 469 Seventh Ave., New York, after March 1.

E. A. Cary, formerly manager of the planning section of the Rayon Division, E. I. du Pont de Nemours & Co., Wilmington, Del., has been transferred to the Nylon Division as assistant division manager.

Frank Baird, long active in cotton yarn selling field, has become associated with W. C. Plunkett & Sons, Inc., New York.

John M. Lang, formerly of Moorhead Knitting Co., has joined Chester H. Roth Co., New York, as stylist and mill contact man.

Claude E. Williams, has become superintendent of Borden Mills, Kingsport, Tenn. He has been for the last six years with Marshall Field & Co.

C. M. Jaggar is now with E. M. Anderson Corp., New York, merchandising the finishes of the Martin Dyeing & Finishing Co.

Robert E. Davies, for a number of years with Newnan Cotton Mills, has been appointed a direct representative and placed in charge of the firm's New York office.

Douglas Pigeon has joined American Viscose Corp., New York, to assist **Pierre Sillian** in the fabrics development department.

J. Andrew Walker has been appointed manager of Department No. 2, women's wear coatings, Pacific Mills Worsted Division, New York, succeeding **George E. Palmer,** resigned.

John E. Phipps has withdrawn as selling agent for the Birdsboro Knitting Mills, to concentrate on the line of the Hancock Knitting Mills, Philadelphia.

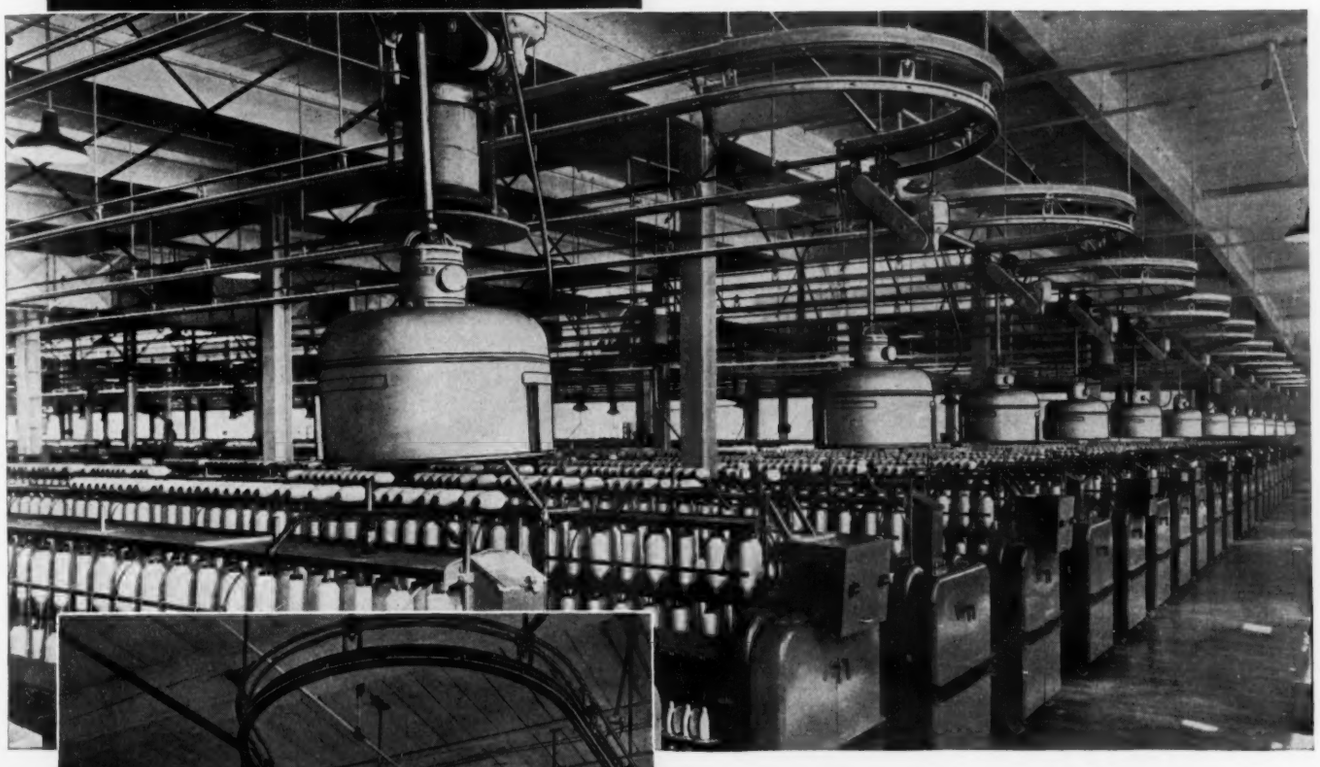
Al Urbanus, who started in the textile business more than 25 years ago under the late Colonel George Fabyan and who for the last 16 years has been in charge of the Chicago office of Bliss Fabyan & Co., has joined the Chicago office of Wellington Sears Co.

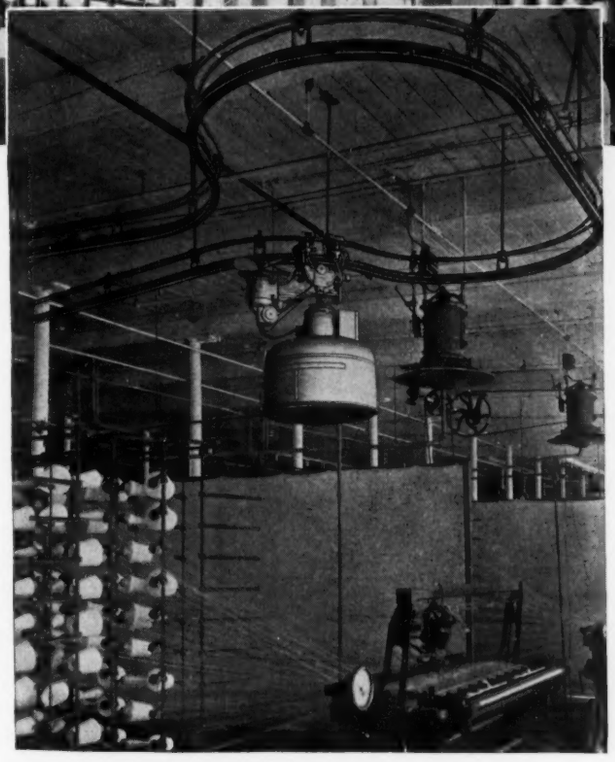
William D. Lydecker is now sales manager of the direct selling office of Statesville (N. C.) Cotton Mills, recently opened in New York. Mr. Lydecker had charge of the company's products when represented by Bliss Fabyan & Co. for the last few years.

Joseph Haines, Jr., has resigned as director and executive secretary of the Full-Fashioned Hosiery Manufacturers of America, Inc., Philadelphia, concluding eleven years service with the association in that capacity.

Miss Louise Whitney, a buyer at Lord & Taylor's, has joined the merchandising staff

Cleans . . your ceiling free!





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Low Cleaning Cost

Cost reductions low enough to justify installations for the sole purpose of cleaning monitor ceilings indicate the potential value of automatic cleaners wherever lint is troublesome.

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Automatic cleaning keeps machines producing full time, enables operatives to increase their output and reduces the number of gouts or bunches in the yarn.

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Vibration isolation pads are of benefit to the textile plant for many reasons.

However, they can all be rolled into one. Mounting machinery on resilient "Unisorb"

SAVES MONEY!

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Mills: Johnson City, N. Y. • Millbury, Mass. • Jackson, Mich.

of American Viscose Corp., New York. **Miss Margaret McEnery,** a member of the merchandising department, will assume the duties relinquished by **Miss Pauline Alper,** who resigned Feb. 1.

W. Linton Howard, formerly with Callaway Mills, LaGrange, Ga., has become associated with **Wm. D. Ellis, 3rd,** of Southern Mills, Inc., Atlanta, Ga., in the development of its fabric department.

R. W. Schrimshire, formerly assistant superintendent of Jordan Mills, Inc., Columbus, Ga., has been promoted to superintendent. **J. S. Alexander** has been made overseer of spinning and **E. L. Smith** overseer of twisting and winding, succeeding **W. W. Beall,** resigned.

Amos C. Johnstone has been elected superintendent of Priscilla plant of Textiles, Inc., Ranlo, N. C., succeeding his father, the late Gordon Johnstone.

Edward L. Whitford is now superintendent of Peerless Weaving Co., Inc., Pawtucket, R. I. He was for nine years with Chopak Textile Co., New York.

Ernest A. Eckert, formerly with Lexington Worsted Co., Central Falls, R. I., is now superintendent of Puritan Mills of American Woolen Co., Plymouth, Mass.

Oscar Brooker has begun his 52d year in employ of the Fulton (N. Y.) Mills of American Woolen Co. He has received congratulations from Moses Pendleton, president of the company, William F. Midgely, resident manager, and many others. Mr. Brooker began work at the age of 12, in the weaving department. He observed his 65th birthday Jan. 29. **Mrs. Catherine Halstead** of Fulton Mills has also completed 51 years service.

John T. Lathem, Leaksville, N. C., head of the Vocational School, at Leaksville-Spray, N. C., since it was started in 1937, resigned Jan. 29 to take a position with the engineering department of Marshall Field & Co. mills at Leaksville-Spray. **Tildon W. Bridges,** an instructor in the school since 1938, succeeded him. **S. C. Summey,** a designer at the mills, was added to the school staff, as instructor in weaving and designing.

J. M. Boiter will succeed **J. H. Burgess** as superintendent of Fountain Inn., S. C., unit of Woodside Mills. Mr. Burgess goes to Gayle unit of Springs Cotton Mills, Chester, S. C., as superintendent. Mr. Boiter, who comes from the Jackson Mills No. 3, High Shoals, N. C., will be succeeded there by **Clyde Waldrop** from Osage Mfg. Co., Bessemer City, N. C.

M. F. Springfield, who recently joined Brookside Mills, Knoxville, Tenn., as overseer of weaving, has been promoted to superintendent of weaving, slashing and drawing-in. He was succeeded as weaving overseer by **H. F. Graham,** formerly with Judson Mills, Greenville, S. C.

L. S. Crain, formerly second hand at Drayton Mills, Spartanburg, S. C., is now an overseer at No. 1 Mill of Brookside Mills, Knoxville, Tenn.

J. E. Carter has been made superintendent of carding at J. W. Sanders Cotton Mills Co., Meridian, Miss., with **A. C. Smith** as superintendent of spinning.

W. N. Carpenter has become superintendent of No. 2 unit of Aponaug Mfg. Co., West Point, Miss.

I. Lewin, general manager of Carter Fabrics Corp., Greensboro, N. C., will also have supervision of the new unit which is being established at South Boston, Va.

Claude B. Williams, for the last three years superintendent of one of the Leaksville, N. C., plants of Marshall Field & Co., has accepted position of superintendent of Borden Mills, Inc., Kingsport, Tenn.

G. C. Truslow succeeds **Claude B. Williams** as superintendent of the suiting mill unit of Marshall Field & Co., Spray, N. C. He also holds a similar position in the blanket and sheeting mill of that company at Draper, N. C.

Cleveland Adams has become superintendent of Unit No. 1, Cowikee Mills, Eufaula, Ala.

W. H. Noblet is now superintendent of Ranlo (N. C.) Mfg. Co., succeeding **C. F. Cloninger.**

C. B. Wall has become general overseer of carding at Profile Cotton Mills, Jacksonville, Ala.

C. C. Crockett is now superintendent of the Morrillton (Ark.) Cotton Mills.

H. M. Fletcher, Jr., has become superintendent of Pepperton Cotton Mills, Jackson, Ga.

J. T. Honeycutt has become superintendent of Greenville (N. C.) Spinners, Inc.

Smith Crow has been promoted to general superintendent of Drayton (S. C.) Mills, and **G. G. Simmons** succeeds him as superintendent.

PAWTUCKET RINGS fit the word smooth to a "T" . . . They're designed for grueling high-speed performance. And because they last longer . . . and require less attention . . . your replacement costs are kept at a minimum. Give your travelers a "turn for the better" . . . replace now with Pawtucket Rings.

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PAWTUCKET SPINNING RING CO.
(Subsidiary of Saco-Lowell Shops) CENTRAL FALLS, R. I.

CUT OUT AND KEEP THIS INFORMATION FOR PERMANENT REFERENCE

This is number 1 of a series. Here you will find practical information of interest to users of rings

THE DOUBLE ADJUSTABLE RING is extensively used, either with cast iron or plate holders. In many mills it is the practice to use one flange until the ring becomes worn, then to reverse the ring, the theory being that in this manner twice as much service can be secured from the initial investment. This is not altogether true, as there are some disadvantages to this practice. For example, there is the possibility of the operatives changing or turning the ring unknown to the overseer. In this manner the spinning conditions of the room are disturbed, due to some rings being run with a new flange, while others in the immediate vicinity are running with the traveller on the old flange. This has produced yarn irregularities which are extremely difficult to locate.

Furthermore, it is very seldom that rings which have been in use for any prolonged length of time can be turned and the standing flange used without repolishing or burnishing, either by the traveller or by some ring maker. In fact, many flanges which have been standing exposed to the heat and humidity of the spinning room for a number of years have been found to be so pitted as to be utterly beyond recovery, either by burnishing or any other means.

THE SINGLE FLANGE RING has long been given the preference in English mills. The advantage of the single flange over the double adjustable ring, as applied to the regular form of holder, of either steel plate or cast iron, is not in price, as both cost the same. The preference lies in the fact that the flange condition throughout the mill will at all times be uniform, making it possible to regulate the size of the travellers, with the assurance that all are in practically the same condition. It is unwise to say how long a ring will last, as this is entirely a matter of what is done to them, and how much care and attention they are given. Under ideal spinning conditions rings may last thirty to forty years, while under adverse conditions or if given abuse, the same rings can be ruined within a single year.

Saco-Lowell Shops, Boston, Mass.

President: Gentlemen, you have given me a very informative report on the advantages which the Carolinas offer us.

Vice-President: We secured most of the information from a survey which the Carolina Power & Light Company made especially for us.

Let us give you pertinent facts about the CAROLINAS
(an individualized survey)

Write us frankly as to your desires relative to a southern location, giving as many particulars as to your requirements as possible, and we will gladly submit an individualized survey without cost or obligation.

The territory, which this company serves in the Carolinas, not only has such assets as ideal climate, plentiful labor, low cost electricity, accessibility to materials and markets and favorable laws and taxes but offers extraordinary advantages worth investigating.

Our sole aim is to bring the right industries into our territory and the information we supply will be of a nature that will allow you to accurately appraise the opportunities offered *you!*

All requests for information will be treated in strict confidence.

AGRICULTURAL & INDUSTRIAL DEVELOPMENT DEPARTMENT

CAROLINA POWER & LIGHT COMPANY
Raleigh North Carolina

Obituary

Walter Ludman Toy, 50, president of Scott & Williams, Inc., Laconia, N. H. died Jan. 25 at the Laconia Memorial Hospital from pneumonia. A native of Brooklyn, N. Y., he had for 29 years been connected with Scott & Williams. He served first as secretary, later as sales manager, then vice-president and finally president of the company in 1936. Until moving to Laconia in 1938, Mr. Toy lived in Ridgewood, N. J.

Walter L. Toy

Arthur W. Shuttleworth, 53, president of Mohawk Carpet Mills, Inc., Amsterdam, N. Y. died in Del Ray, Fla., Jan. 27. He succeeded his father as head of Mohawk 10 years ago. The original Shuttleworth Bros. Carpet Co. was founded in 1880; the present corporation was formed in 1920 when Shuttleworth merged with McCleary, Wallin & Crouse. Mr. Shuttleworth is survived by two brothers, Herbert L., vice-president, and Edwin C., secretary.

L. L. Hardin of the Hampton Spinning Mills, Clover, S. C., for many years a leader in the southern textile industry, died at his home there Feb. 5, at the age of 61. He was both a banker and cotton textile executive. He came to Gastonia, N. C., many years ago with the Gaston Loan & Trust Co., and left that company to become secretary of the Arlington Mills, Gastonia. Later he was president of Bank of Columbia. Fifteen years ago he moved to Clover, S. C., to be associated with the Hampton Spinning Mills. In 1931 he succeeded M. L. Smith as assistant treasurer and general manager. Due to ill health last summer Mr. Hardin gave up his active work with the company, but remained in an advisory capacity. He has served four successive terms as vice-president of the Southern Combed Yarn Spinners Association.

Col. Arthur Farragut Townsend, 74, chairman of the board of Raybestos-Manhattan, Inc., and general manager of Manhattan Rubber Mfg. Division, Passaic, N. J., died January 14, at his residence in Ridgewood, N. J. With his associates he founded the Manhattan Rubber Mfg. Co. in 1893. He had completed 55 years in the rubber industry.

Arthur Osborne Dawson, 75, president of Canadian Cottons Limited, Montreal, of Belding-Corticelli Ltd., of Dominion Woolens & Worsteds Ltd. and of Cornwall & York Cotton Mills, died on the train between Boston and Toronto Jan. 10. He was President of the Council of the Montreal Board of Trade and chairman of the board of the Canadian Chamber of Commerce.

Alexander Alexander, 68, chairman of the board and former president of National Starch Products, Inc., New York, died Jan. 10 at Miami Beach, Fla.

August H. Friedrichs, 54, head of Dearnley Bros. and founder of Westmoreland Dye Works, Philadelphia, died Jan. 14.

Albert Herzing, 80, president of St. Marys (Ohio) Woolen Mfg. Co., and identified with the firm for the last 60 years, died Jan. 20.

Richard Milzner, 52, president and founder of Cotton Threads Ltd., Montreal, Que., died recently.

Solomon G. Touchstone, 65, for the last 24 years, overseer of carding at Granby Plant, Pacific Mills, Columbia, S. C., died suddenly Jan. 8.

Charles G. Fead, 75, president of J. L. Fead & Sons Co., Port Huron, Mich., died Jan. 20.

Samuel S. Mauney, 88, one of the South's pioneer textile manufacturers, died at his home in Cherryville, N. C., Jan. 9. He was one of the organizers of Cherryville Mfg. Co., one of the first cotton mills in Gaston County.

Frank Joseph Entwistle, 69, vice-president and general manager of A. D. Ellis Mills, Inc., Monson, Mass., and for 52 years active in wool manufacture died Jan. 20.

Elery L. Smith, 59, Greensboro, N. C., vice-president of

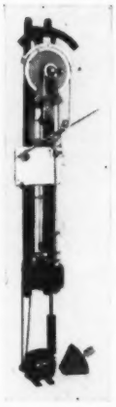
SCOTT TESTERS*

The Standard of the World

There is a SCOTT TESTER* for tensile tests of all materials

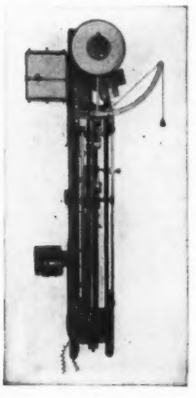
J-2

The standard machine as approved by the U. S. Government for testing yarn, cloth, paper, copper wire and similar materals.



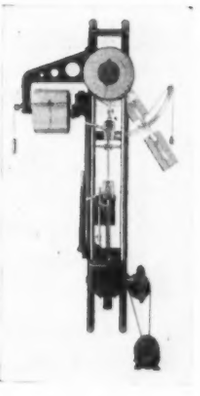
X-3

The accepted machine of the world for tensile elongation tests of tire cord.



L-6

The accepted standard of the rubber industry for tensile tests of rubber. Equipped with many exclusive Scott features.



J-5

The standard machine for laboratory research and routine control of the tire wire industry.

HENRY L. SCOTT CO.

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NEWS ABOUT MEN

the Philadelphia (Pa.) Dyeing Machine Co., died Dec. 29, in Greensboro.

Charles C. Valentine, 67, since 1928 head of C. C. Valentine & Co., New York, a firm founded by his father in 1879, died at his home in Brooklyn, N. Y., Jan. 15. His firm has been agent for 50 years for H. E. Bradford Co., Bennington, Vt., New England Knitting Co., Winsted, Conn. and Winsted (Conn.) Hosiery Co., and also represents other mills. His was the first firm to represent knitters selling direct to wholesalers instead of through commission houses.

Charles C. Valentine

Walter B. Levett, 74, long known as a leader among cotton goods converters, died Jan. 27 at his home in New York.

Richard M. Levy, 63, retired district sales manager for the R. & H. chemical department of E. I. du Pont de Nemours & Co., died at Charlotte, N. C., recently.

John Barbey, 89, chairman of the board of Vanity Fair Silk Mills and president-treasurer of Barbey's, Inc., died recently at his home in Reading, Pa.

Hal Emerson Schenck, 45, vice-president and manager of Cleveland Mill & Power Co., Lawndale, N. C., founded by his grandfather, died recently at Charlotte, N. C.

A. H. (Burt) Kennedy, Sherwin-Williams industrial sales manager for the South Atlantic District, died suddenly in Philadelphia on Jan. 12.

Joseph N. Susskind, 60, president of Clifton Yarn Mills, Clifton Heights, Pa., died recently in Philadelphia.

Robert S. Wheeler, 72, superintendent of Crystal Springs Bleachery, Chickamauga, Ga., is dead. He was chairman of the South Central Section of A.A.T.C.C.

Samuel M. D. Clapper, vice-president of Cannon Mills and active in the cotton yarn industry for many years, died Jan. 19. He succeeded Martin Glynn, Sr., in charge of cotton yarn sales for Cannon, after the dissolution of Franklin D'Olier & Co., of which he was a member.

Frederick B. Huntington, 51, of Bedford Hills, N. Y., treasurer of the Real Silk Hosiery Co., New York, died of a bullet wound Jan. 8, at Hadley, Mass.

Elwin Chappell, 72, pioneer in development of the southern cotton-textile industry, died in Atlanta, Ga., Jan. 17. He had retired in 1930. Mr. Chappell moved to Atlanta in 1895 from Providence, R. I. and was southern representative of H & B American Machine Co.

Charles McLendon Robinson, 52, secretary of Ruby Mills, Gastonia, N. C., died Jan. 14.

Benjamine P. Odum, 65, retired textile manufacturer, died at his home in Statesville, N. C.

Ammon H. Johnson, 72, New Berlinville, Pa. died recently. With his son James F. Johnson, he had been in the carpet weaving business for a number of years.

William Summerville, who with his father formerly operated the Magnolia Cotton Mills, Charlotte, N. C., died Jan. 8.

Thornton M. Richards, 51, cotton cloth broker, New York, died suddenly Jan. 13.

Ralph S. Stokes, of Stokes Bros. Worsted Co., Providence, R. I., died Jan. 14.

Charles A. Mann, retired underwear merchant, died recently in Orford, N. H. At one time he was in charge of the New York office of Oneida Knitting Mills.

Harry Holmes, 69, until four years ago operator of Holmes Spinning Mills, Central Falls, R. I., died at East Providence, Jan. 16.

James P. Corr, for many years manager of the P. H. Corr Waste Co., died in Taunton, Mass., last month.

W. J. Gutekunst, 74, treasurer of Hellwig Silk Dyeing Co., Philadelphia, with which he had been associated for 55 years, died Jan. 15.

Joel David Charles, 50, previous to 1925 secretary of Conestee Mills and lately sales representative of Gastonia Mills Supply Co., died in Greenville, S. C., last month.

John R. Gross, 58, treasurer of Stunzi Sons Silk Co., New York, died Jan. 18.

Lubricate your plant with Lubriplate —the New Principle Lubricant!

Are your lubricant bills running too high? Are replacements due to faulty lubrication excessive? Are you worried about noisy gears, hot running bearings or oil-dripping chains?

Then Lubriplate is your answer. Try Lubriplate on the *toughest* lubricating job in the plant. See for yourself how this *new principle* lubricant stops noise—ends dripping—cools running temperatures—slashes lubricant consumption—reduces labor charges to a minimum.

7 QUICK FACTS

1. *Lubriplate* produces a wear-resisting bearing surface.
2. *Lubriplate* resists rust corrosion and pitting.
3. *Lubriplate* reduces friction, thus lowering maintenance costs and power costs.
4. *Lubriplate* is white and clean.
5. *Lubriplate* outlasts ordinary lubricants many times.
6. *Lubriplate* is economical—a little goes a long ways.
7. *Lubriplate* is available in fluid and grease types for every need.

1 SAVE WORK

A large aluminum company* was forced to lubricate coilers, shears and presses from 2 to 3 times each shift. With Lubriplate, a *single lubrication* per shift was all that was needed. In addition, 1 pound of Lubriplate goes as far as 3 pounds of the former lubricant.

2 SAVE WORRY

A leading food packer* was faced with a mean lubricating problem. Oil was dripping badly from a single long conveyor which wove all about the shipping floor. The conveyor squeaked constantly. The day Lubriplate was introduced, squeaks and dripping stopped—*completely*. What's more, the Superintendent reports that "Lubriplate lasts a surprisingly long time. Now we are using Lubriplate on many applications."

3 SAVE MONEY

Prior to using Lubriplate, a leading vulcanized fibre company* found that *one* gear consumed 36 gallons of oil, required 4 gear replacements and $6 replacement labor over a six months' period—for a total cost of $79.82. During the next 6 months Lubriplate was used at a total cost of $2.50. No replacements. No labor charges.

*NAMES ON REQUEST

TRY LUBRIPLATE TODAY

Lubriplate Division of

FISKE BROTHERS REFINING CO.

NEWARK, NEW JERSEY • TOLEDO, OHIO

Dealers from Coast to Coast

LUBRIPLATE

THE WHITE LUBRICANT THAT MINIMIZES WEAR

WILL IT FADE

IT WILL PAY YOU TO KNOW!

Fade-Ometer and Launder-Ometer exposures in your own laboratory will give you quick, dependable answers in a few short hours.

Federal, Bureau of Standards, A.A.T.C.C., and A.S.T.M. specifications require the use of these two laboratory units.

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FADE-OMETER *Accelerated Sunlight*
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BARNES TEXTILE ASSOCIATES

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TEXTILE MILL NEWS

Cotton Mill News

Aponaug Cotton Mills, Winona, Miss., were destroyed by fire Jan. 19, at a loss of $200,000. It has not been learned whether the mill will be rebuilt or not.

Armstrong Mill, Gastonia, N. C., is constructing a 30 x 100 ft. addition to house additional carding machinery.

Beacon Wadding Corp., 141 Milk St., Boston, Mass., recently organized with capital of $99,000, plans operation of a cotton mill in vicinity of the city. Willard N. Morrison is president; and Thomas B. Forsyth, treasurer.

Belmont Cotton Mills Co., Shelby, N. C., lost its warehouse and general mill supply room by fire recently.

Berthdale Mills, Inc., McComb, Miss., will be sold at public auction to satisfy a debt of $105,000 owed to the RFC, according to W. T. Denman, trustee.

Boston Duck Co., Bondsville, Mass., is installing 300 additional looms. A new Sanforizer has also been installed and a new dyehouse outfitted. The mill is now making a new line of wool-filled goods.

Cabot Mfg. Co., reports net profit for 1939 of $38,501 against net loss of $241,444 for 1938.

Canton (Ga.) **Cotton Mills** have installed 780 K-A electrical warp stops on its looms.

Carolina Mills Co., Maiden, N. C., has purchased Cayuga Linen Cotton Mills, Lexington, N. C., and will open a new unit at Newton, N. C. Machinery from the Cayuga plant will be moved to Newton and housed in the old Catawba Cotton Mill.

Cedartown (Ga.) **Textiles, Inc.,** has installed new boiler room equipment including an Erie 330 h.p. gas-fired automatic water tube boiler, and new chimney. Other recent improvements included installation of a high-speed tenter dryer and a small piece-dye kettle.

Clinton (S. C.) **Cotton Mills** have enlarged the main office, built a brick, seven-stall garage for the mill trucks, and a cotton warehouse, of steel and brick construction, two stories, with 25,000 sq. ft. floor space.

Cowpens (S. C.) **Mfg. Co.** plant and other property, was sold by C. E. Daniel, referee in bankruptcy, of Spartanburg, Jan. 27, following receipt of an order recommending the acceptance of a $47,500 bid of George Norwood, and associates, Greenville, S. C.

Crompton - Shenandoah Co., Waynesboro, Va., is considering one-story addition to mill, as part of 1940 expansion program.

Dixie Mercerizing Co., Chattanooga, Tenn., are about to construct a $55,000, one-story, addition.

Dominion Textile Co. Ltd., Montreal, Que., has ordered 550 Model X Draper looms for installation in its Merchants Branch in Montreal, Que.

Drayton (S. C.) **Mills,** have completed a new opening room 56 x 76 ft., one-story, of mill construction; also an addition to the general office, 33 x 39 ft. Plans by Lockwood Greene Engineers, Inc.

Dwight Mfg. Co., Alabama City, Ala., reports net profit for year ended Nov. 30, 1939, of $238,217 compared with net loss of $42,555 in previous year.

Entwistle Mill No. 1, Rockingham, N. C., is building 10 houses for employees at cost of $18,000.

Erwin Cotton Mills Co., Cooleemee, N. C., has modernized its air-conditioning system with the Bahnson Ductless equipment and Master Humidity Control. The same system was recently installed at Erwin's Durham, N. C., plant.

Fisk Rubber Corp., New Bedford, Mass., has deeded its local tire fabric plant to U. S. Rubber Co. Revenue stamps indicate a transfer valuation of $66,000. Replacement cost of the property is estimated at $1,000,000. Plant will continue to operate.

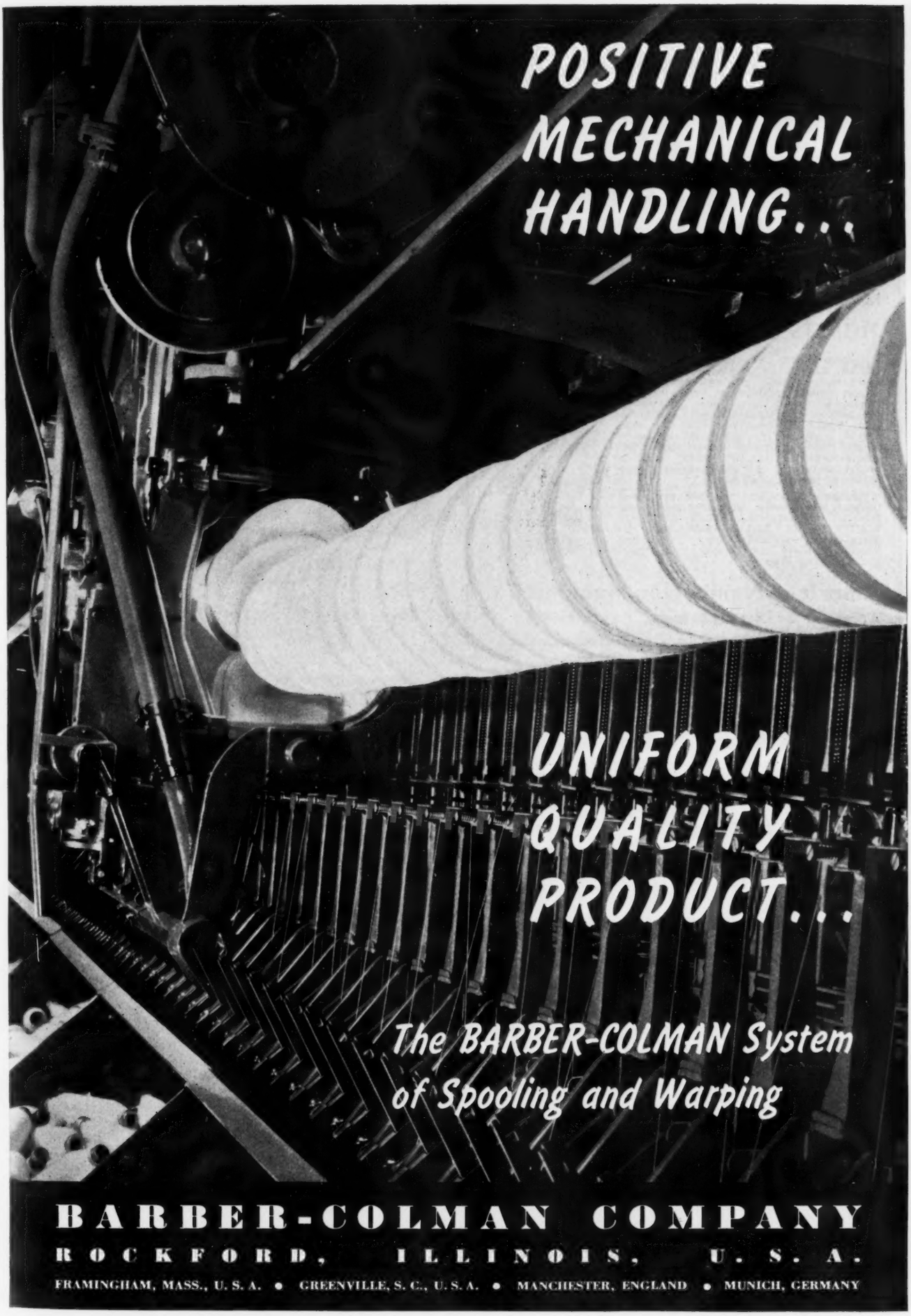
Greenville (N. C.) **Spinners, Inc.,** are installing one Foster 102 high-speed winder, vacuum card-stripping equipment, and conditioning room equipment.

Grenada (Miss.) **Industries** have installed air conditioning equipment at a cost of $15,000.

Hudson (N. C.) **Mfg. Co.** has installed a one-process picker.

Hudson Narrow Tape Mill, Easley, S. C., has been established.

Johnson & Johnson, New Brunswick, N. J., has arranged for long-term lease of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No 12345
Yards 56⅞ 56⅝

The New
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GEAR CONSTRUCTION
NUMBERING
MACHINES

Designed Especially For
MARKING TEXTILE MILL TAGS, TICKETS, LABELS, ETC.

Modern textile merchandising demands CLEAR, EASILY READ piece, lot and case numbers, size and yardage lengths, etc. Supply this demand and use the new American Speed Set Gear Construction Numbering Machines. Such numbering with Speed Set machines can be done quickly and easily. Numbers change instantly with touch of fingers and ANY COMBINATION OF NUMBERS can be quickly obtained. All steel wheels, deeply engraved figures, self-inking.

Eliminate errors and see that your tags, tickets, labels, etc., are attractively and legibly numbered the SPEED SET way. WRITE TODAY FOR FOLDER describing these new machines used in Cotton, Woolen, Hosiery, Knit Goods, and Dyeing and Finishing Plants.

American Numbering Machine Co.
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CRAMERTON MILLS
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LAWRENCE, MASS.

NONQUITT MILLS
NEW BEDFORD, MASS.

WILLIAM WHITMAN COMPANY, Inc.
NEW YORK BOSTON PHILADELPHIA CHARLOTTE

one-story industrial building, 200 x 280 ft., to be erected by the Clearing Industrial District, Chicago, Ill., at 4950 West 66th St., Chicago, and will occupy for new branch plant. Cost over $150,000, with equipment. Erection will begin soon.

Louisville (Ky.) **Textiles, Inc.,** has completed a new modern office building consisting of a fireproof structure 56 x 60 ft., one-story and part basement, under plans and supervision by Lockwood Greene Engineers, Inc.

McCampbell & Co., New York, reports net profit for 1939 of $175,374 compared with $76,889 the year previous.

Meherrin Mills Corp., Emporia, Va, is a newly formed mill, formerly Emporia Textile Mills. R. W. Jordan is president; R. W. Little, secretary and treasurer, and B. Majer, superintendent.

Merrimack Mfg. Co., Boston, reports net profit for 1939 of about $335,000, compared with net loss for 1938 of $589,320.

Monarch Mills, Union, S. C., is installing a number of latest-type 44-inch looms.

Mount Airy (N. C.) **Textile Mills** is installing machinery in new 1-story addition; total cost $40,000.

Muscogee Mfg. Co., Columbus, Ga., plans to construct a pump house and water filtration plant to cost, including property, $15,000.

Pacific Mills, Lawrence, Mass., are offering for sale industrial properties in Lawrence as follows: a seven-story warehouse (257,272 sq. ft. floor space), a four-story manufacturing building (521,056 sq. ft.) with side track facilities, a three-story manufacturing building (88,300 sq. ft.) and a piece of land, 54,900 sq. ft.

F. W. Poe Mfg. Co., Greenville, S. C., has installed a boiler from E. Keeler Co. and a stoker from Detroit Stoker Co., purchased by J. E. Sirrine & Co. also of Greenville.

Primrose Bedspread Corp., New Bedford, Mass., will start operations March 1 on third floor of Bristol Mill. This company has moved north from a southern location.

Red Springs (N. C.) **Weaving Co.** has started operation on its new equipment, including 576 new X-D model Draper looms, with K-A electrical warp stops.

Robinson Yarn Mill, Dallas, N. C., has completed the installation of new roving machinery, and work is under way on the installation of other machinery to bring the mill up-to-date.

Spartan Mills, Spartanburg, S. C., have announced plans for beginning installation of 78 X-Model looms.

Tallassee Mills, Tallassee, Ala., is installing K-A electrical warp stops on 404 looms.

Textiles, Inc., having consolidated its equipment with a smaller number of units is now offering for sale the buildings and real estate formerly occupied by four of its units as follows: Monarch Cotton Mills, Dallas, N. C.; Mutual Mill No. 2, Gastonia, N. C.; Lockmore Cotton Mills, York, S. C.; Wymojo Mills, Rock Hill, S. C.

Threads, Inc., Gastonia, N. C., unit, has constructed an addition for finishing, storage and shipping. Unit at Monticello, Inc., may soon be moved to Gastonia.

United Merchants & Manufacturers report consolidated net earnings for six months ended Dec. 31, 1939, of $1,028,195, compared with consolidated net earnings for five months ended Dec. 31, 1938 of $563,046.

Victor - Monaghan Co., Greenville, S. C., has installed new machinery, including 23,000 Whitin long-draft spindles, and Whitin long-draft attachments were placed on 10,000 filling spindles. A Barber-Colman automatic spooler and warper was installed and 564 Draper 44-inch, X-5 model, 20 harness, high-speed dobby looms, with K-A warp stops, replaced old equipment. In the company's plant at Greer, S. C., and Arlington, S. C., long-draft roving has been installed.

Washington Mfg. Co., Tennille, Ga., has recently installed a Barber-Colman spooler.

Weimar Bros., Philadelphia, dissolved partnership as of Dec. 30, 1939, and the business is being conducted by one of the brothers under his own name—William D. Weimar.

Paul Whitin Mfg. Co., Northbridge, Mass., has installed 132 new Hygrade HF-100 industrial units in the weave shed which give an illumination level of 20-foot candles.

Wool Mill News

Aldrich Mfg. Co., Charlton, Mass., has modernized its dyehouse equipment, installing new stainless steel Tru-shade dyeing machines, washers and fulling mills supplied by Rodney Hunt Machine Co., Orange, Mass.

Arlington Mills, Lawrence, Mass., reports net profit of

THIS VACANT PLANT is in Southern Maine—15 miles from Portland harbor facilities. 24-hour freight to New York. Trucking service to principal Eastern markets.

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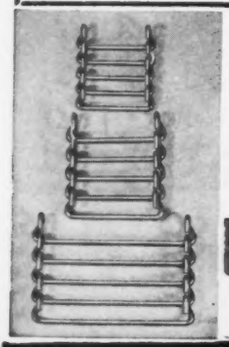

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NOVELTY-YARNS For WEAVERS-KNITTERS

MONTGOMERY
WINDSOR LOCKS, CONN.
Designers and Spinners of Novelty Yarns

$194,079 for year ended Nov. 30, 1939, on sales volume of $13,762,754; for previous fiscal year there was net loss of $818,399 on sales of $10,698,698.

Bigelow-Sanford Carpet Co., Amsterdam, N. Y., is modernizing a section of local mill. Contract was awarded to James McKinney & Son, Albany, N. Y.; cost estimated at $45,000.

Cen-Texas Wool & Mohair Co., San Marcos, Tex., has superstructure under way for one-story mill, to be equipped for processing wool.

Collins & Aikman Corp., Philadelphia, Pa., plans four-story and basement addition, 140 x 147 ft., to branch mill at Bristol, R. I. Cost over $100,000, with equipment.

Erben-Harding Co., Philadelphia, is being liquidated following sale of its French spinning equipment to a buyer from Mexico. Firm was founded in 1865.

Glen Williams Woolen Mill, Glen Williams, Ont., which went into liquidation more than a year ago, will be re-opened by M. Steinberg of Toronto, who purchased it from the trustee for the sum of $15,000.

Leominster (Mass.) **Mills** sold its machinery at auction Jan. 18 for about $20,000, including four cards, 102 82-in. looms, etc. Aaron Krock was the auctioneer.

Lester & Burton Ltd., have been chartered for $40,000 by the Ontario (Canada) Government, and will make worsted piece goods. Firm is headed by F. Burton, who recently came to Canada from Rumania, and will use automatic looms.

Mexia (Tex.) **Textile Mills** have approved plans for two-story addition, 85 x 100 ft. About 4000 new spindles and auxiliary equipment will be installed; cost estimated at $75,000.

Paragon Worsted Co., Providence, R. I., will soon open its 77 x 260 ft. addition which will double the capacity of its spinning department which operates as the M. & F. Worsted Mills.

Park Mill, Sabattus, Me., is on the market again after the collapse of earlier purchase. Town has authorized sale for not less than $19,000 as a going concern.

Rock River Woolen Mills, Janesville, Wis., has installed a new 60-inch card to replace an old type 48-inch wooden cylinder machine, which has been in use at the plant for 60 years. The new machine will increase capacity by one-third.

S. Stroock & Co., New York, reports net profit of $103,825 for 1939 compared with $40,055 in 1938.

Texas Woolen Mills, Eldorado, Texas, has started its building, 75 x 85 ft., of native stone. Machinery for carding, spinning and weaving has been bought; operations on a line of blankets will begin operation about June 1. J. M. Christian is in charge.

West Coast Woolen Mills, Ltd., Vancouver, B. C., has been purchased by interests from Czechoslovakia. About $20,000 is to be expended on plant and equipment. The firm is now making military blankets.

Worumbo Mfg. Co., Lisbon Falls, Me., has plans nearing completion for new financing through a proposed RFC loan to total about $850,000, of which it is expected to expend approximately $300,000, for modernization and improvements in the mill.

Rayon & Silk Mill News

American Viscose Corp., Roanoke, Va., has let general contract to John P. Pettyjohn & Co., Lynchburg, Va., for expansion in processing division at local mill.

Amoskeag Fabrics, Inc., Manchester, N. H., has had a controlling interest of 51% of its stock sold by Amoskeag Industries, Inc., its parent concern, to Wellington Sears Co., selling agents for the company since it was incorporated in 1938. J. Briggs Felton is president of the fabrics firm.

Belding - Heminway - Corticelli Co., New York, N. Y., has purchased mill of Summit Thread Co., East Hampton, Conn., and may operate as a branch mill or move equipment to Putnam, Conn.

Carter Fabrics Corp., South Boston, Va., through J. E. Sirrine & Co., Greenville, S. C., has let three special contracts for its new 480-loom rayon weaving plant—one to Adams Electric Co. for lighting and power wiring; one to Grinnell Co. for outside fire protection and sprinkler equipment; one to C. M. Guest & Sons for the steam piping contract. Boilers come from Kewanee Boiler Co., and stokers from Detroit Stoker Co.

Cleveland Cloth Mill, Shelby, N. C., has begun work on additional warehouse after just completing a warehouse at cost of $30,000.

Duplan Silk Corp., New York, reports for six months

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Deering Milliken and Company are now ready to serve you in their new building at Church and Leonard Streets. Their enlarged quarters and expanded facilities will contribute to your greater convenience and satisfaction.

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TEXTILE WORLD'S
KNIT GOODS SHOW NUMBER
will be published in
April

ended Nov. 30, 1939, a net profit of $246,687 compared with $230,080 in similar period a year previous.

E. I. duPont deNemours & Co., Rayon Division, Waynesboro, Va., plans expansion and improvement at local mill, with installation of additional equipment for increased capacity.

Hoffner Rayon Co., Howard and Huntingdon Sts., Philadelphia, is the new name of the former Hoffner Silk Dyeing Co. Personnel remains unchanged.

Industrial Rayon Corp. will increase capacity of Painesville, Ohio, plant by 50% at cost of $4,000,000.

Maxton (N. C.) Textile Corp., recently organized, is installing 30 looms and auxiliary equipment. Officers of the new company are C. A. Hasty, president, and W. R. Renner, vice-president.

Mexico City, Mexico — Plans for a rayon mill are under way here to relieve a scarcity of the yarn due to decline in volume possible to import from Europe.

National Silk Spinning Co., Inc., has appointed Harold W. Horton, Providence, R. I., as liquidating agent for sale of the machinery and equipment in its plant at New Bedford, Mass. When emptied of machinery, space in the mill building will be offered for lease. Negotiations are said to be under way for sale of the automatic loom weaving mill as a unit, for operation in present location.

Phillipsburg (N. J.) Textile Mfg. Co., has taken a 5-year lease on the idle plant of Gunning Silk Co., South Easton, Pa. Machinery and equipment have been moved into the Easton plant.

Standard Ribbon Corp., Stroudsburg, Pa., has plans for operation of a unit at Brewton, Ala., in a building formerly owned by the Brewton Silk Mills.

Virginia Textile Corp., Lynchburg, Va., idle since 1938, has been sold to Clarence G. Burton, president of the Lynchburg Hosiery Mills. He expects to sell or rent the property, which was sold to liquidate the holdings of Dundee Textile Corp., Passaic, N. J.

Wayne Mfg. Co., Waynesboro, Va., has approved plans for new one-story mill, 165 x 300 ft., on Essex Ave., for silk and rayon fabric manufacture. Cost over $50,000, with equipment.

Knitting Mill News

Black Hosiery Mills, Midland, N. C., has been chartered for $100,000 to manufacture and finish hosiery, underwear, etc. S. L. Black, W. M. Black and Ruth L. Black are the incorporators.

Burlington Hosiery Associates, Randleman, N. C., unit, recently put into operation, has reached full production. Machinery includes 12 Reading machines; leggers 26-section and footers 30-section.

Carrollton, Ga., will build a plant to house the Maryon Hosiery Mill. The mill recently threatened to move due to lack of adequate quarters.

W. P. Chestnut, Englewood, Tenn., will start a new hosiery mill in plant formerly the Englewood Mfg. Co. The new mill will make infants' and children's hosiery.

Clark-Washington Industries, Jackson, Ala., is installing new machinery in mill erected by citizens and leased to the company; 24 full-fashioned machines will be installed.

Danita Hosiery Mills, Newark, Del., have completed addition to house new 51-gage machines.

Davis Full - Fashioned Hosiery Mill, Greenville, S. C., will build its own dyeing and finishing plant.

Henry Davis & Co., Ltd., Toronto, Ont., manufacturers of infants' and children's knitted outerwear, has added two Dubied machines.

Durham Hosiery Mills reports net profit of $115,401 for 1939 against $98,346 for 1938.

Elizabeth James Mill, No. 1, Marion, N. C., now maintains a new office building located near the mill.

Harris Silk Hosiery Co., East Springfield, was purchased at public auction, Jan. 6 by Longmeadow Mills, Inc., newly formed with Allen L. Snyder as president and treasurer. The property was sold for $36,876. Production will be 3-thread 45 gage. The new owners plan to expend considerable money in modernizing and equipment. Mr. Snyder is with the Chester Pure Silk Hosiery Co., St. Louis, Mo.

Homestead Industrial Co., Jasper, Ala., has installed 48 hosiery machines and is running two shifts.

Hose, Inc., Sweetwater, Tenn., will begin operations in the old Lorraine Mill building. Edwin Sizer will be in charge

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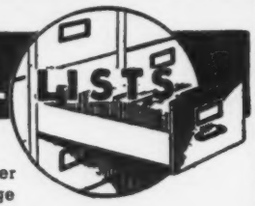

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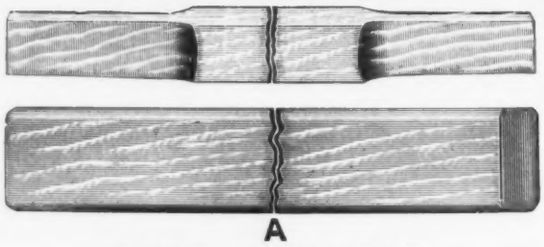

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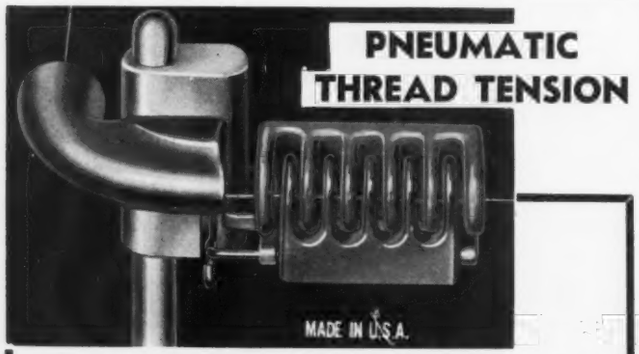

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ROBERT REINER, INC. Weehawken, N. J.
Builders of creels and warping equipment

of production. Incorporators are J. B. Sizer, F. L. Kinney, and L. E. White.

Jackson Hill, N. C., has a new knitting mill operating at full capacity and owned by Herbert and Clayton Surratt.

Julius Kayser & Co., Brooklyn, N. Y., has awarded contract to H. E. Stoudt & Son, Allentown, Pa., for construction of large addition to its plant in Bangor, Pa., to be completed about May 1, when company will transfer its hosiery activities from Brooklyn to Bangor.

Kale Knitting Mills, Mebane, N. C., has started operations with 4 full-fashioned machines.

Liberty (N. C.) **Hosiery Mills** have constructed a finishing unit, which cost $100,000, and will install most modern type of finishing machinery.

M. & J. Hosiery Mill, Fort Atkinson, Wis., is planning the erection of an addition.

McEwen Knitting Co., Burlington, N. C., has constructed an addition 50 x 100 ft., at cost of $25,000. Additional machinery will be installed.

Howard C. Mohn Hosiery Co., Inc., Adamstown, Pa. have moved their mill to Reading, Pa. and are now located at Walnut & Rose Streets.

Princeton Knitting Mills, Watertown, Conn., have begun erection of a one and three-story addition, 25 x 60 ft., for which general contract was let to Bartlett-Brainard Co., Hartford, Conn. Cost about $40,000, with equipment. Buck & Buck, Hartford, are architects.

Real Silk Hosiery Mills reports net profit for 1939 of $169,536 against $119,018 for 1938.

Staton Bros., Providence, R. I., has been placed in hands of J. B. Linehan and E. T. Friedman, as permanent receivers.

Travelo Corp., Philadelphia, Pa.—Machinery has been sold at a liquidation sale, including about 150 knitting machines as well as finishing machinery.

Waldensian Hosiery Mill, Valdese, N. C., will soon complete a building in which the finishing department will be moved, which will double the present floor space.

Wallner Silk Hosiery Mills, Pulaski, Va., are installing 26 full-fashioned machines and auxiliary equipment in addition which the company recently completed.

Y. & B. Hosiery Co., Reading, Pa., has awarded contracts for remodeling the former Meinig factory, that city. The company recently took over the plant and will equip it for hosiery knitting.

Processing Plant News

Anchor Piece Dye Works, Prospect Park, N. J., partly destroyed by fire Jan. 20, is preparing to rebuild as soon as insurance adjustment has been made.

Cleveland (Ohio) **Dyeing Co.** has been incorporated. Principals are David C. Haynes, City Bank Bldg., Samuel D. Ungar and Alfred McCullough.

Cowan & Swain Co., commission dyers for textile mills, Andover, Mass., has removed to larger space in the Haverhill (Mass.) Association factory at 42 Walnut Street.

Crew Piece Dye Works, East Paterson, N. J., is moving from its old location and has sold surplus machinery by auction.

Crown Converting Co., Lincolnton, N. C., has leased buildings of the former Elm Grove Cotton Mills and will move immediately. Company will add equipment, including skein mercerizing.

Eagle Dyeing & Finishing Co., Mount Holly, N. J., has recently established a local mill and operations are under way.

Gregg Dyeing Co., Graniteville, S. C., has awarded contract to Grinnell Co., Providence, R. I., for installation of piping systems for processing and heating in new three-story addition, 90 x 165 ft.

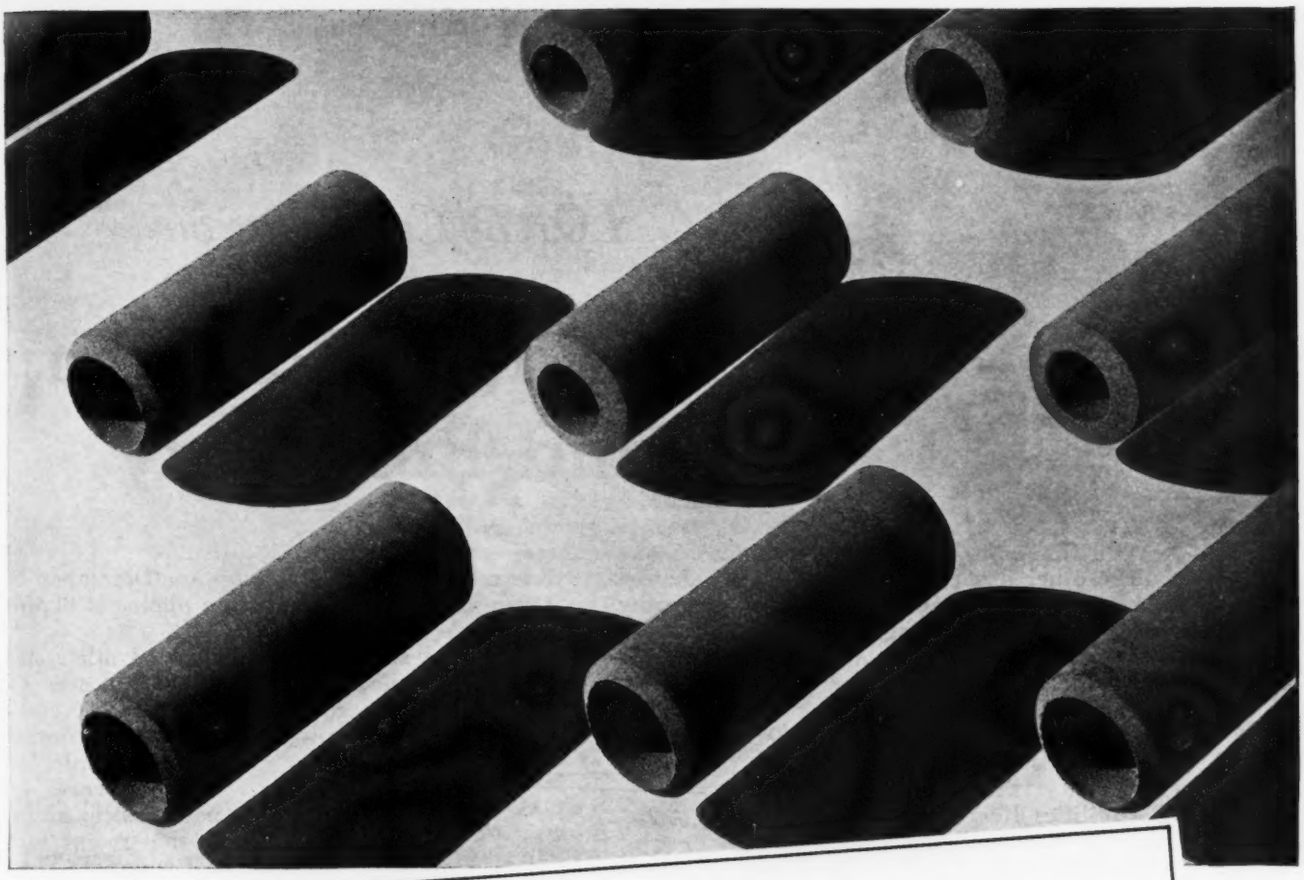
Hartsville (S. C.) **Print & Dye Works** has completed its 77B reorganization.

Neversink Dyeing Co., Inc., Reading, Pa. have taken out a permit for a three-story brick, steel and concrete addition, 46 x 89 ft., to cost $15,000, L. H. Focht & Son, contractors.

New Process Dye & Finish Co., Paterson, N. J., has recently established a local plant.

Palmer Brothers Co. has sold the Swansea (Mass.) Print Works, Inc., a subsidiary, to a group which has reincorporated the company.

Utica Willowvale Bleaching Co., Chadwicks, N. Y., has awarded contract to H. R. Beebe, Inc., Utica, New York for construction of a new boiler plant, 45 x 70 ft., one-story, brick, steel and concrete construction. Three, 400 hp., boilers will be installed. Plans prepared by Lockwood Greene Engineers, Inc.



1,500,000 MORE SPINDLES
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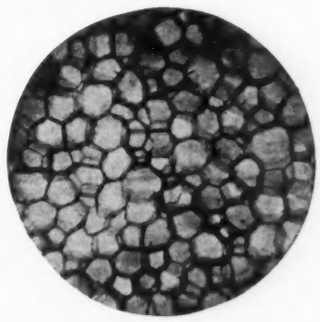
Economy is one of the chief reasons why so many mills are switching to cork. The initial cost of Armstrong's Cork Cots is no higher than that of other types of roll coverings. Your savings start with quicker, cheaper assembly. And your savings continue, for cork gives longer wear because it's tougher. Furthermore, you can rebuff these cots—make them like new—*three or four times*. Each rebuffing costs about *half a cent a roll!*

In addition, you can produce *better yarn* with Armstrong's Cork Cots. The higher coefficient of friction of these roll coverings assures a stronger, more uniform product. Running of the work, also, is improved with cork. You get less eyebrowing and end breakage. Less clearer waste, fewer top roll laps, and less trouble with hard ends. From *every* standpoint, cork gives better service!

Mills throughout the industry have reported savings of 50%—and more—on roll covering costs after changing over to cork. Let an Armstrong representative show you how *your* mill can reduce production costs and boost quality by switching to Armstrong's Cork Cots. He will be glad to show you actual production figures of mills spinning your range of numbers on cork.

Write Armstrong Cork Company, Industrial Division, Textile Products Section, 927 Arch St., Lancaster, Pa.



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H. G. LORD Comments on

President Harrison and Prosperity

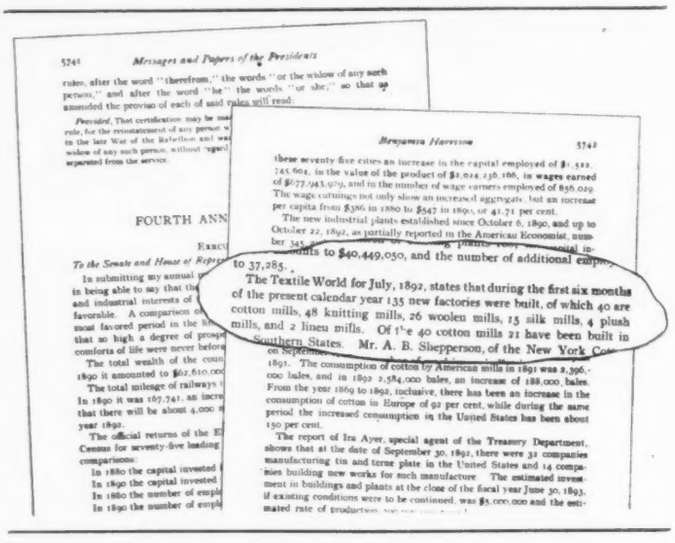
The other day editor Douglas Woolf showed me a great bunch of clippings from the daily press all over the country, quoting TEXTILE WORLD and commenting on textile mill activity, with such headings as "Textile Activity at New High," "Record Set in Textiles," "1940 Outlook for Textiles," "Textile Industry Expects Profits" and "Profit Possibilities Reappear in Textiles." Only last week I noted the Reader's Digest had an article from TEXTILE WORLD.

Prosperity in the textile industry has always gone in waves, but except as it was affected by general business panics or depression, textile mill construction had a very constant and oftentimes rapid growth from 1890 to 1926, and new mill construction was regarded as an index of prosperity. I recognized that fact and, as early as 1888, made a feature of publishing the record of new mill construction and important enlargements and improvements.

I was reminded of this the other day when I was looking through the Mill News Section of TEXTILE WORLD. I remembered that one of the Presidents had quoted the TEXTILE WORLD reports in his annual message to Congress. Subscribers and advertisers were profuse in their congratulations at this national recognition of TEXTILE WORLD authority.

I thought that it was President McKinley, but in looking up the records I find that it was in President Benjamin Harrison's Fourth Annual Message to Congress on December 6, 1892. Reproduced here is the photostat of the quotation taken from the record.

President Harrison also presented other statistics which he believed "showed a degree of prosperity and a general diffusion of the comforts of life such as were never before enjoyed by our people."



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rules, after the word "therefrom," the words "or the widow of any such person," and after the word "he" the words "or she;" so that as amended the proviso of each of said rules will read:

Provided, That certification may be made ... rule, for the reinstatement of any person ... to the late War of the Rebellion and was ... widow of any such person, without regard ... separated from the service.

FOURTH ANN...

EXECU...

To the Senate and House of Repre...

In submitting my annual ... in being able to say that the ... and industrial interests of ... favorable. A comparison of ... most favored period in the ... that so high a degree of prosp... comforts of life were never before ...

The total wealth of the coun... 1890 it amounted to $62,610,00...

The total mileage of railways ... In 1890 it was 167,741, an increa... that there will be about 4,000 ... year 1892.

The official returns of the E... Census for seventy-five leading ... comparisons:

In 1880 the capital invested ...
In 1890 the capital invested ...
In 1880 the number of empl...
In 1890 the number of empl...

Benjamin Harrison 5743

these seventy-five cities an increase in the capital employed of $1,512,745,604, in the value of the product of $1,024,158,186, in wages earned of $677,943,979, and in the number of wage earners employed of 836,029. The wage earnings not only show an increased aggregate, but an increase per capita from $386 in 1880 to $547 in 1890, or 41.71 per cent.

The new industrial plants established since October 6, 1890, and up to October 22, 1892, as partially reported in the American Economist, number 345, ... to $40,449,050, and the number of additional employ... to 37,285.

The Textile World for July, 1892, states that during the first six months of the present calendar year 135 new factories were built, of which 40 are cotton mills, 48 knitting mills, 26 woolen mills, 15 silk mills, 4 plush mills, and 2 linen mills. Of the 40 cotton mills 21 have been built in Southern States. Mr. A. B. Shepperson, of the New York Cot... on September ... 1891. The consumption of cotton by American mills in 1891 was 2,396,000 bales, and in 1892 2,584,000 bales, an increase of 188,000 bales. From the year 1869 to 1892, inclusive, there has been an increase in the consumption of cotton in Europe of 92 per cent, while during the same period the increased consumption in the United States has been about 150 per cent.

The report of Ira Ayer, special agent of the Treasury Department, shows that at the date of September 30, 1892, there were 32 companies manufacturing tin and terne plate in the United States and 14 companies building new works for such manufacture. The estimated investment in buildings and plants at the close of the fiscal year June 30, 1893, if existing conditions were to be continued, was $5,000,000 and the estimated rate of production ...

The record of new textile mills in that report was not unusual. That period and the early years of the twentieth century were the years of extraordinary development in new mill building. There had been a big Southern land boom in 1892, during which time it seemed as if almost every city and town in the South was offering inducements for cotton mills.

The number of cotton spindles was estimated at 15,200,000 and during that prosperous period in the 90's, and again for a few years later, the gain was at the rate of 1,000,000 spindles per year, which was about the capacity of the American shops to build. The peak was reached in 1925, when over 37,000,000 spindles were in place; there are only about 25,000,000 now. But in those days there was only one shift and far less efficiency of production, so that our present 25,000,000 spindles, running double shift, more than equal the production of the old days of greater spindleage.

It certainly seems like old times to read the headlines of Textile Prosperity once more.

H. G. LORD, *founder of Textile World in 1888 and president, Bragdon, Lord & Nagle Division, McGraw-Hill Publishing Co.*